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ABSTRACT

This special issue of "The Forensic Quarterly" provides background information on the problem chosen for the national high school forensic series for the 1975-76 academic year: What policy for the development and allocation of scarce world resources would best serve the interests of the people of the world? Section one is a profile of scarcity and discusses such topics as the definition of scarce world resources, scarcity in food resources, energy resources, and mineral resources. Section two focuses on present controls over the development and allocation of scarce world resources and discusses the definition of development and allocation, development and allocation through trade, distribution and allocation through assistance and private investment, and development and allocation through the international monetary system. Section three discusses the definition of control by an international organization, expansion and adaptation of existing models, and new initiatives. Section four is an annotated bibliography of books, general periodicals, and government periodicals related to the issue of world resources. (TS)

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ERIC First Analysis: 1975-76 National High School Debate Resolutions

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PREFACE TO THE ERIC FIRST ANALYSIS

In preparing the *ERIC First Analysis* the author has not attempted to write a typical debate handbook containing affirmative and negative casing approaches and evidence files. Rather, he has been concerned with supplying the reader with background information which points out and illuminates the underlying issues of the 1975-76 National High School Debate Resolutions. Of course, the complex subject of world resources cannot be encompassed in detail in a study of this limited magnitude. However, if it stimulates thought and motivates further research, then the study will have succeeded in meeting its goals. In order to facilitate additional research, an extensive annotated bibliography accompanies the analysis.

Primary research materials assembled by the author also are available on microfiche for the students having access to microfiche readers. These can be obtained by writing to the ERIC/RCS Speech Communication Module, Speech Communication Association, Statler Hilton Hotel, New York, N.Y. 10001. ($3.95 prepaid)

The author wishes to express his deep appreciation to Dr. Patrick Kennicott, Associate Executive Secretary for Research of the Speech Communication Association, without whose assistance the project could not have been completed. In addition, I would like to express a debt of gratitude to Research Assistants Martin Marlin, Scott Seablom, and Mark Norman, and to the ever-patient Joan Riley, who helped type the manuscript, and to Linda Jeanne Reed, Research Associate/Editor, ERIC Clearinghouse on Reading and Communication Skills, for her conscientious editing of the ERIC First Analysis and accompanying bibliography.

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WILLIAM M. REYNOLDS
April 1975

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1975-76 Topic: WORLD RESOURCES

The problem chosen for the national high school forensic series for the 1975-76 academic year is:

> What policy for the development and allocation of scarce world resources would best serve the interests of the people of the world?

DISCUSSION QUESTIONS:

What policy for the development and allocation of the scarce world resources would best serve the interests of the people of the world?

What policy for the development and allocation of world food resources would best serve the interests of the people of the world?

What policy for the development and allocation of world energy resources would best serve the interests of the people of the world?

DEBATE RESOLUTIONS:

Resolved: That the development and allocation of scarce world resources should be controlled by an international organization.

Resolved: That the development and allocation of world food resources should be controlled by an international organization.

Resolved: That the development and allocation of world energy resources should be controlled by an international organization.

Problem, questions and resolutions recommended for Secondary Schools of the United States, 1975-1976 by the Committee on Discussion and Debate, National University Extension Association

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World Resources: ERIC First Analysis*

By William M. Reynolds†

"Throughout history," the report of the United Nations World Population Conference observes, "the rate of growth of world population averaged only slightly above replacement levels." Since 1950, however, it has accelerated to an annual rate of increase of 2 per cent.[1] The highest rates of growth are occuring in the less developed regions which are more than double the rates found in developed areas, an average of 2.4 per cent against an average of 1 per cent or less. In tropical Latin America and parts of Southeast Asia population growth exceeds 3 per cent annually. Overall, "the population of the less developed regions, which constitute 67 per cent of the world's total in 1960, is projected . . . to constitute 79 per cent by the end of the century."[2] A profile of world population is seen in Table 1.[3]

This sudden increase in population growth rate has resulted from dramatic declines in mortality in recent decades, principally in developing nations, which have not been accompanied by corresponding reduction in birth rate. In the words of A.S. Parkes of Cambridge University, "it has been caused primarily by the control of infectious disease, especially in areas where birth-rates remain high, which has brought about a sudden widening in the margin between births and deaths, and made possible by a substantial though inadequate increase in food production."[4]

If this rate of increase is sustained, world population will begin doubling every 35 years. Expressed numerically, by the year 2000, world population will stand at 6 billion people; by 2035, it will rise to 12 billion; by 2070, to 24 billion; and around the year 2100, it will double again to a staggering total of 48 billion people.[5]

While very few anticipate that world population will ever reach these upper totals, "demographers are unanimous in their view that population increase will not decline significantly for a long time to come."[6] The reasons are twofold. First, as seen in Table 2, areas with high birth rates, a characteristic of developing nations, contain a large percentage of young people in their populations.

*Prepared for *World Resources: The Forensic Quarterly*, Vol. 49, No. 1 (April 1975) Copyright © 1975. All rights reserved.

†Professor William Reynolds of George Washington University has written the *ERIC First Analysis* for the past two years.

TABLE I Estimated Population, 1920 & 1960, and Projected 1980 & 2000 by Regions, in Millions*

	Estimated		Projected				Average Annual Growth Rate: Medium Projection
				2000			
	1920	1960	1980 Med.	Med.	Low	High	1960-2000
The World	1,860	2,998	4,330	6,130	5,449	6,994	1.8
Less-Developed Regions	1,187	2,022	3,136	4,688	4,155	5,420	2.1
East Asia (ex. Japan)	498	701	930	1,165	1,003	1,484	1.3
If Mainland East Asia grows at rate projected for South Asia:							
The World**			4,554	6,726	6,056	7,496	2.0
Less-Developed Regions**			3,360	5,234	4,762	5,922	2.4
East Asia (ex. Japan)**			1,154	1,761	1,610	1,986	2.3
South Asia	470	865	1,420	2,171	1,984	2,444	2.3
Melanesia, Micronesia & Polynesia	2	3	5	7	6	9	2.3
Africa	143	273	449	768	684	864	2.6
Latin America (ex. Temperate South America)	75	179	332	577	477	619	2.9
More Developed Regions	673	976	1,194	1,441	1,293	1,574	1.0
Europe	325	425	479	527	491	563	.5
U.S.S.R.	155	214	278	353	316	403	1.3
Northern America	116	199	262	354	294	376	1.4
Japan	55	93	111	122	115	139	.7
Temperate South America	15	33	46	61	55	67	1.5
Australia & New Zealand	7	13	18	24	22	26	1.6

*Source: The United Nations, *World Population Prospects as Assessed in 1963*, Population Studies, No. 41, New York, 1966. Sales No.: 66.XIII.2.

**Computed by Notestein for data given in thousands. If these average rates are

applied for five-year intervals according to the formula $P_t = P_o e^{rt}$, the resulting projected population for the years intervening between 1960 and 2000 tend to be lower than U.N. projected values, but the difference is seldom more than 2 per cent and never more than 4 per cent. The maximum departures occur about 1980. The formula is that for compound interest when the compounding is continuous instead of annual, P_t is the population t years after P_o, the initial population, r is the annual rate, and e is the base of the natural logarithms.

TABLE 2. Percentage Distribution of Population By Broad Age Groups as Estimated for 1960 and Projected to 2000 (U.N. Medium Values)

	Under 15		15-64		65+	
	1960	2000	1960	2000	1960	2000
The World	36.4	32.4	58.7	61.2	4.9	6.4
Less-Developed Regions	40.1	34.6	56.6	60.6	3.3	4.8
East Asia (ex Japan)	36.9	27.3	59.1	66.0	4.0	6.7
Alternative*						
The World*	37.4	33.8	57.9	60.3	4.7	5.9
Less-Developed Regions*	41.6	36.1	55.4	59.6	3.0	4.3
East Asia (ex. Japan)*	41.2	34.4	55.8	61.0	3.0	4.6
South Asia	41.0	34.6	55.9	60.9	3.1	4.6
Melanesia, Micronesia & Polynesia	38.1	41.6	58.4	54.6	3.7	3.8
Africa	43.1	42.3	54.2	54.5	2.7	3.2
Latin America (ex. Temperate South America)	43.4	39.1	53.6	57.1	3.0	3.8
More-Developed Regions	28.7	25.6	63.0	63.0	8.3	11.4
Europe	25.7	22.9	64.5	64.0	9.8	13.1
U.S.S.R.	30.8	27.1	63.0	61.7	6.2	11.2
Northern America	31.3	29.8	59.7	61.3	9.0	8.9
Japan	29.9	19.0	64.4	67.3	5.7	13.7
Temperate So. America	32.5	29.9	62.6	63.2	4.9	8.9
Australia & New Zealand	30.6	29.6	60.9	61.0	8.5	9.4

*The values were obtained on the assumption that Mainland East Asia had the same projected rates of growth and initial age distribution as South Asia, a situation that seems more probable than the values given for Mainland East Asia in the U.N. report from which the data are taken: *World Population Prospects As Assessed in 1963*, Population Studies, No. 41, New York, 1966.

It is commonly understood that societies with age distributions of this

kind are extremely fertile.[7] The Report of the United Nations World Population Conference explains:

> Because of the relatively high proportion of children and youth in the population of developing countries, declines in fertility levels in these countries will not be fully reflected in declines in population growth rates until some decades later. To illustrate this demographic inertia, it may be noted that, for developing countries, even if replacement levels of fertility—approximately two children per family—had been achieved in 1970 and maintained there-after, their population would still grow from a 1970 total of 2.5 billion to about 4.4 billion before it would stabilize during the second half of the twenty-first century.[8]

Second, even though death rates have fallen significantly in developing countries, mortality remains high.

> At present, average expectation of life at birth is 63 years in Latin America, 57 years in Asia and only a little over 46 years in Africa, compared with more than 71 years in the developed regions. Furthermore, although on average less than one in 40 children dies before reaching the age of one year in the developed regions, one in 15 dies before reaching that age in Latin America, one in 10 in Asia and one in seven in Africa. In fact, in some developing regions, and particularly in African countries, average expectation of life at birth is estimated to be less than 40 years and one in four children dies before the age of 1 year.[9]

Quite understandably, the reduction of mortality rates, particularly infant mortality, is high on the priorities of developing nations. However, further declines in mortality rates will tend to offset any decline in birth rates in those nations.

The question for our age, then, boils down to this: Can the resources of the world be expanded and stretched far enough to sustain population increases of the magnitude projected by demographers? Authorities are divided on this question. Some feel that in all likelihood the battle against population pressures is already lost. In a matter of decades, they warn, the press of sheer numbers will create profound shortages of very nearly every resource upon which modern man depends for biological survival and growth. At that time, in the competition for scarce resources, many millions will die from starvation, disease, and war. As James Echols, a past president of the Population Reference Bureau, sees the situation:

> "We're too late. It's too late now to change individual minds and social customs and solve the problem" without increased mortality. . . .The chances are [now good] that a combination of food shortages, disease, war to hold or seize disappearing resources, pollution and social chaos will combine to raise death rates dramatically." In other words, "either you have fewer people or the people who are alive are going to have to struggle so hard for available resources" that many will die.[10]

Georg Borgstrom writes in his study, *Too Many: An Ecological Overview of Earth's Limitations:*

> The fact is that the world in all likelihood, and this on the basis of most available evidence, is on the verge of the biggest famine in history—not to be sure, the world we live in, but the poor world, the countries of Asia, Africa and Latin America. Such a famine will have massive proportions and affect hundreds of millions, possibly even billions. By 1984, it will dwarf and overshadow most of the issues and anxieties that now attract attention, such as nuclear weapons, communism, the space race, unemployment, inflation, racial tensions, Vietnam, the Middle East, . . . etc.[11]

Other authorities express guarded optimism that the problem of population can be solved if the resources of the world are properly managed Almost universally, however, they stress the urgency of undertaking new initiatives now. These may be summarized in three areas:

1. Family, national and international policies for effective population control now, i.e., reducing the propensity to reproduce.
2. Agricultural development to increase food production in hungry nations, with interim food aid from advanced countries.
3. Economic, political and social changes in developing countries designed to promote total economic development.[12]

These approaches are not new; indeed, attempts to implement them originally stretch back several decades. With respect to population control, "today, something like 72 per cent of the population of the Less-Developed Regions live under governments that formally favor the reduction of birth rates as a matter of national policy."[13] A partial list of nations involved include: Pakistan, Nepal, India, Sri Lanka, Taiwan, South Korea, Iran, Malaysia, Turkey, Egypt, Tunisia, Morocco, Kenya, Costa Rica, Trinidad and Tobago, El Salvador, Jamaica, Barbados, Thailand, Indonesia, the Philippines, Colombia, Venezuela, Chile, and Peru.[14]

That more nations have not embraced population control as a matter of policy or that existing programs have not produced anticipated outcomes can be attributed to a number of factors. In many nations, strong social and religious barriers discourage birth control policies; in others, programs are under-financed, existing more on paper than in practice; in still others, use is made of ineffective contraceptive devices which either do not arrest pregnancy or encourage neglect by users; and in some nations, political leaders have undercut efforts by portraying birth control as an imperialistic, genocidal plot. The chief obstacle, however, appears to be motivation: "It is argued that illiterate peasants are most unlikely to be interested in such radically innovative behavior as contraceptive practice while they are under the influence of the strong familial institutions in societies where survival, not over-rapid growth, has been the agelong problem."[15] Until survival of the family is perceived to be a guaranteed fact by poorer classes, responses to birth control policies will be insufficient.[16]

By the same token, programs which aim at stimulating food production or sharing the produce of food-rich nations date back to the early 1960s. Yet even with the massive gains achieved through "Green Revolution" technology, experts at the United Nations World Food Conference held in Rome in November, 1974, estimated that millions of people in the developing world face the imminent threat of starvation and another 460 million suffer from extreme malnutrition.[17] Sartzj Aziz, Deputy Secretary-General of the conference, predicts that "unless food production in the developing countries is increased by at least 35 per cent in the next 12 years, there is no foreseeable way to forestall famine of mammoth proportions."[18]

Finally, substantial efforts have been made to encourage economic growth in developing nations. Through technical assistance and grants from developing nations, some progress has been made toward industrialization, educational facilities have been up-graded and expanded, and land has been redistributed. Positive contributions also have been made through preferential trading arrangements and international policies to stabilize prices of raw materials. But, as with efforts to control population and achieve agricultural sufficiency, these efforts have fallen short of what is required to contain the population explosion. Frank W. Notestein accurately summarizes the situation:

> Country after country has seen its best economic efforts almost nullified by the added burden of rapid population growth. Schools are built and teachers trained, but the child population increases so rapidly that there are more illiterates than ever before. Houses are built, but the slums expand. Jobs are created, but the unemployed and underemployed grow in numbers . . .
>
> Country after country is making a valiant effort to modernize, and considerable successes have been achieved in terms of national income. A few countries have sustained annual increases of more than 5 per cent in economic production. Many have gained by less than 5 per cent. With a stationary population, a 5 per cent annual gain in income would double per capita income in about 12 years. Since incomes per head are often under $200 and sometimes under $100 a year, even a doubling would leave the population in abject poverty. In fact, however, the populations are not stationary. As we have seen, in the Less-Developed Regions the projected average growth rate is 2.4 per cent per year. If total income is rising by 5 per cent, and the population is growing by 2.4 per cent, then per capita income is rising by only 2.6 per cent. The pathetically low average income will take 27 years to double, while a doubled population takes only 29 years. A more typical situation, however, is that in which total income is rising by 4 per cent which, with 2.4 per cent in population growth, lifts per capita income by only 1.6 per cent. That requires 43 years to double. In the time it takes per capita income to rise from say, the $200 to the $400 level, the population increases almost threefold.[19]

Faced by the failure thus far of developing countries either to contain population increases or to accomodate them through social and economic

growth and aware of the apocalyptic consequences—mass starvation, plagues, and the likelihood of warfare—which will accompany these failures in the future, a growing number of experts foresee increased international cooperation as the only means of staving off world disaster. Costly new agricultural and industrial technologies must be developed and financed; all nations must be guaranteed access to scarce resources at prices they can afford; wasteful practices of consumption must be ended; economic growth in developing nations must be fostered by massive infusions of capital and technical assistance; new efforts must be made to break down societal and religious barriers to birth control and family planning—and this list barely scratches the surface of the problem. All these lie beyond the capabilities of any one nation or perhaps even groups of nations acting regionally. Richard Gardner of Columbia University suggests that what is called for is a "mutual survival pact" among the developed and developing nations of the world, one in which:

> the raw-materials-producing countries would have to be guaranteed access to the markets, management skills and capital of the industrial world in return for an agreement to keep their prices within reason. The poor would have to abide by certain expected norms of behavior. For instance, the U.S. would not give vast amounts of food to India if that country cut its budget for family planning and invested resources in the testing of nuclear weapons.[20]

The pressing need for international cooperation in the development and allocation of scarce world resources arises during a period of re-emerging nationalism and insularity. *Newsweek* crystallizes the problem in the following passage:

> If there is a growing realization in the latter third of the twentieth century that the nations of the world are essentially interdependent, the will to act that way is not always there. Severe inflation, a wide range of domestic problems and resurging nationalism have caused many countries to turn inward. And when they do look abroad, their view is still ruled by national self-interests and balance-of-power politics. Under these circumstances, global cooperation may prove to be the most difficult solution of all.[21]

Yet, even though the climate for international action may be unfavorable, the issue has been joined in forums around the world. The Provisional Indicative World Plan for Agricultural Development of the United Nations Committee on Food and Agriculture (FAO), the United Nations FAO World Food Programme, the International Labor Organization's World Employment Programme, the Action Plan for the Human Environment, the United Nations World Plan of Action for the Application of Science and Technology to Development, the Programme of Concerted Action for the Advancement of Women, and more comprehensively, the International Development

Strategy for the Second United Nations Development Decade are just a few of the new initiatives.

The 1975-76 National High School Debate Resolutions invite participation in these debates. They are:

I. Resolved: *That the development and allocation of scarce world resources should be controlled by an international organization.*

II. Resolved: *That the development and allocation of world food resources should be controlled by an international organization.*

III. Resolved: *That the development and allocation of world energy resources should be controlled by an international organization.*

The discussion of the topic which follows is divided into three sections. Section I explores the problem of scarcity of world resources, including food and energy resources. Section II attempts to describe existing mechanisms and programs for developing and allocating resources throughout the world. Section III treats some of the international approaches which have been proposed for dealing with the problem of scarcity.

SECTION I: PROFILE OF SCARCITY

The purpose of this section is to describe specific world resources that are in short supply, to describe the severity of the shortages, and to analyze some of their causes. In order to facilitate the discussion, it is necessary first to define the phrase, "scarce world resources." This definition will be developed by beginning with the term *resources* and then by considering its modifiers, *world* and *scarce*.

Definition of Scarce World Resources

Resources. A dictionary definition of the term *resources* is simply those "sources of supply, support or aid." For economists, this definition is unsatisfactory because it ignores answers to important questions such as of what kind, for what purpose, and for whom? Hence, the economist would expand the definition the following way: Resources are all new and reserved sources of supply, support, or aid—natural, human, and man-made—that go into the production of goods and services in order to satisfy human wants and needs. Resources, then, are of three kinds: (1) natural resources, our inheritance from nature composed of land, water, atmosphere, minerals,

and life forms (fauna and flora); (2) human resources, labor (from unskilled to skilled, nontechnical to techinical), and entrepreneurial ability (management); and (3) man-made resources, all man-made aids to production, such as machinery, factories, investments, etc.

These resources are put to use as building blocks for producing goods (commodities) and services. Goods and services have utility in that they satisfy human wants and needs, man's physiological necessities as well as the need to grow socially and economically. The following model illustrates our use of resources:

Goods or Service
WHEAT

Resources Needed

Natural:	Human:	Man-Made:
Seeds	Farmer	Machinery
Soil		Storage Facilities
Water		Investments
Sunlight		Fertilizers
		Pesticides

Notice in the model that wheat, in an economic analysis, is a commodity, not one of the basic resources. In a technical sense, this is probably true of all types of food products. However, because food is so fundamental to human survival, it is frequently treated as one of the basic resources. Furthermore, to the extent that a raw food product must be processed before it is fit for human consumption, the raw product becomes one of the resources in the production process. For example, when the wheat produced in the model above is sent to mills to be ground into flour, it becomes one of the resources on which the miller draws in the production of his commodity. We are inclined, therefore, to include food among the resources of the world. Much the same can be said for energy. It is a product of natural resources such as fossil minerals, uranium, sunlight, and water courses. However, like food, it has come to be considered a resource and it will be considered such here.

While we have attempted to categorize resources as natural, human, and man-made, it must be recognized that all resources are linked together in an elaborate ecological system. Use or abuse of one of these resources profoundly impacts on the use of all other resources. Thus, increasingly authorities are viewing resources as an infrangible whole.

World. This term can only refer to the planet Earth and humans in general. It suggests strongly in this context that the resources of the planet are held in a kind of collective ownership by all people which transcends traditional notions of private property and national sovereignty. This view is strengthened by the fact that the agent of change in all the 1975-76

resolutions is an international organization with powers of controlling private and national activities.

Scarce. This word means "insufficient to satisfy need, or not abundant." In the popular mind, resources are scarce when their supply is, or appears to be, limited in nature. Thus, gold and platinum are deemed to be scarce because they are trace elements on the planet. We also speak of oil as being scarce because known publicized reserves seem to be in short supply. However, as James Boyd points out in *The Mineral Position of the United States, 1975-2000,* genuine shortages are seldom encountered in nature; indeed, he says, "total reserves are large enough to stagger the imagination."[22] Resources are scarce primarily because we lack the technology to recover and process them at costs feasible under existing economic conditions. According to Boyd: "Shortages, if they occur, result from failure to find and develop reserves and to finance and build the supply system."[23] Scarcity is a function, therefore, not only of natural limitations but also of technological and economic limitations.

But resources become scarce for still other reasons. Through monopolistic controls over supply or through manipulation of the distribution system, resources which exist in great abundance may be withheld from the market. Thus, artificial scarcity is generated. In addition, resources may be scarce because society prohibits their development or supply. Environmental demands for clean air, for instance, or the fear that nuclear power plants will contaminate the environment have lead to curtailments in the use of coal and nuclear power in the generation of energy, thus contributing to the energy shortage in the United States. Furthermore, through diversion or misuse of resources of a region, one nation may create shortages for its neighbors. Rivers which cross international boundaries offer a prime example of this cause of scarcity. By the time the Colorado River crosses into Mexico, for example, its waters are so polluted that the river has little utility to Mexican farmers. Finally, international conflict results in scarcity. The prolonged war in Southeast Asia has seriously crippled the ability of that region to contribute to world food supply.

The word scarce, then, must be defined in the context of controls exerted over supply by forces such as natural limitations, technological drag, social pressures, nationalism, and war.

Scarce world resources. In light of the discussion above, this phrase appears to refer to those natural, human and man-made resources, on which all people depend for survival and growth, that are in short supply because of natural, technological, monopolistic, social and international causes, and war. We shall discuss these under three general headings, food, energy, and mineral resources. However, within each heading our analysis, by necessity, must include other more specific resources.

Scarcity in Food Resources

In its assessment of the world food supply, the World Food Conference

observed that "the optimism about the world food situation and prospects which prevailed at the end of the sixties has given way to widespread anxiety."[24] The immediate cause of this concern can be traced back to the year 1972. In that year, drought in Northern Africa and poor weather conditions in Southeast Asia and the Indian subcontinent, Canada, Australia, and the Soviet Union resulted in sharp cutbacks in food production. Total world food production declined by 1.6 per cent.[25] More alarmingly, since the bulk of the world's people consume them directly, production of cereal grains fell from 1,209 million metric tons in 1971 to 1,184 million metric tons in 1972; wheat production dropped by 7.4 million metric tons, coarse grains by 17.9 million metric tons and rice by 10.2 million metric tons.[26] In the same period of time world population grew by 2 per cent, thus the net loss was substantially compounded.

Very rapidly, this shortfall sent shock waves through the world's economy. World food prices soared: "Wheat prices increased from $60 per ton in the second quarter of 1972 to $210 per ton in the first quarter of 1974, a 250 per cent increase. During the same period, the price of rice rose over 300 per cent—from $132 to $570 per ton."[27] As is seen in Table 3,[28] these prices have declined but slightly since then. The higher prices were quickly passed on to consumers. In the developed OECD (Organization for Economic Cooperation and Development) nations, as the United States Department of Agriculture notes in *The World Food Situation and Prospects to 1985:*

> Average consumer prices rose 3.7 per cent annually during the 1961-71 period, but they increased 4.7 per cent in 1972, 7.7 per cent in 1973, and 12.5 per cent between March 1973 and March 1974. Even in these developed countries, food accounts for between 30 and 55 per cent of the consumer price index, except for the United States, where it accounts for only 22 per cent.

In the developing countries the impact was much more severe. They faced almost insurmountable problems of financing higher food import bills, since at the very time the cost of food was skyrocketing in the international market, the value of their exports remained at pre-shortage levels. The problem was exacerbated by two other factors: the energy crisis, which inflated the cost of fertilizers, and dramatic declines in food aid programs, on which many nations relied to make up deficits. The decline in assistance followed drops in world food reserves to the lowest levels in 20 years. Reserves of wheat, for example, fell from 48.8 million metric tons in 1971 to 29 million metric tons in 1972. Similar decreases are recorded for coarse grains and rice, the reserves of which fell 29 per cent and 31 per cent respectively.[30] As a consequence of all these forces, starvation conditions prevailed in the Sahelian region of Africa and in Bangladesh, in several countries rice was rationed, and in numerous other developing nations severe local shortages occurred. "History records more acute shortages in individual countries, but it is doubtful whether such a critical food situation has ever been worldwide," according to a United Nations analysis.[31]

TABLE 3. World Cereal Supplies, 1971/72 to 1973/74*

	1971/72	1972/73	1973/74
	(...million metric tons...)		
Wheat			
Production [6]	353.6	346.2	377.9
Imports[1]	52.1	67.6	64.7
Developed countries [7]	22.8	33.7	22.7
Developing countries	29.3	33.9	42.0
Closing stocks of main exporting countries [2]	48.8	29.0	20.7
Coarse Grains [3]			
Production [5]	651.4	633.5	674.9
Imports	47.4	55.4	62.7
Developed countries [7]	40.9	45.4	48.4
Developing countries	6.5	10.0	14.3
Closing stocks of main exporting countries [4]	55.6	39.6	31.8
Rice (milled equivalent)			
Production [5]	205.9	195.7	214.3
Imports [5]	7.7	7.6	7.4
Developed countries	1.6	1.4	1.3
Developing countries	6.1	6.2	6.1
Closing stocks of the main exporting countries [6]	9.1	6.3	3.7

[1] Including wheat flour in wheat equivalent
[2] Argentina, Australia, Canada, European Economic Community, United States
[3] Rye, barley, oats, maize, sorghum and millets, mixed grains
[4] Argentina, Australia, Canada, United States
[5] Calendar years, 1971, 1972, 1973
[6] Japan, Pakistan, Thailand, United States
[7] Excluding trade between EEC (European Economic Community) member countries.

*Source: *FAO Commodity Review and Outlook, 1973-1974*, Rome 1974

As a model for the future, the events of 1972 deserve careful study. They illustrate in starkly real terms the precarious margin which now exists between world food production and world population. They show that within a matter of months crop failures in certain key areas are translated into serious food shortages, higher food prices, serious inflationary pressures, and severe deprivation among the poorer people of the world. And they indicate that future crises may be much more damaging because the reserves needed to offset and cushion them may not be rebuilt.

Prior to 1972, authorities were generally optimistic about world food prospects through 1985. As a study conducted for the World Food Conference discloses:

> Between 1953 and 1971, in 22 developing countries the rate of growth of food production exceeded the Second Development Decade target of 4 per cent per annum, while in only 13 countries was it less than 2 per cent. In 33 out of 86 developing countries for which data is available output grew faster than food demand; in 54 of the countries it grew faster than population.[32]

Partially on the basis of these achievements, the United Nations Committee on Food and Agriculture (FAO), the United States Department of Agriculture, and Iowa State University all projected that now through 1985 world food resources would probably remain in surplus of population needs. Their projections for cereal grains are summarized in Table 4.[33]

TABLE 4—Comparison of Cereal Projections to 1985*

Item	FAO base (1969-71)	FAO 1985	USDA base (1969-71)	USDA-I 1985	USDA-II 1985	USDA-III 1985	USDA-IV 1985	ISU 1985
				million metric tons				
World								
Demand	1,207	1,725	1,062.6	1,548.5	1,618.7	1,501.8	1,643.9	1,145.5
Production	1,239	NS	1,081.8	1,550.4	1,620.6	1,503.6	1,645.7	1,187.3 (L)
Balance†	+32	NS	19.2	1.9	1.9	1.9	1.9	1,191.7 (H)
								41.8 (L)
								46.2 (H)
Developing countries								
Demand	590	929	466.6	691.2	726.2	678.6	743.5	
Production	585	853	443.1	632.4	648.7	626.2	721.0	
Balance	-5	-76	-23.5	-58.8	-77.5	-52.4	-22.5	
Developing market economies								
Demand	386	629	299.7	479.4	512.6	466.7	529.1	524.7
Production	370	544	279.2	424.7	441.0	418.7	513.3	411.0 (H)
Balance	-16	-85	-20.5	-54.7	-71.6	-48.0	-15.8	406.6 (L)
								-113.7 (H)
								-118.1 (L)
Asian centrally planned countries‡								
Demand	204	300	166.9	211.8	213.6	211.9	214.4	
Production	215	309	163.9	207.7	207.7	207.7	207.7	
Balance	+11	+9	-3.0	-4.1	-5.9	-4.2	-6.7	
Developed countries§								
Demand	617	796	596.0	857.3	892.5	823.2	900.4	403.4
Production	654	NS	638.7	918.0	971.9	877.4	924.7	574.0
Balance	+37	NS	42.7	60.7	79.4	54.2	24.3	170.6

*The data for FAO and USDA are not comparable because FAO carries rice as paddy, USDA carries rice as milled. †Imbalances for USDA between demand and production in base are due to stock buildup, timing of shipments, and missing data on a number of small importers. Projected equilibrium does not allow for building or reducing stocks. ‡FAO Asian centrally planned countries include the People's Republic of China and other Asian centrally planned countries (North Korea, North Vietnam, etc.), while USDA includes only the People's Republic of China. §Includes the USSR and Eastern Europe.

Note: Detail may not sum to total because of rounding.

NS = not shown.

Space does not permit a full discussion of the assumptions underlying these projections. In general, on the demand side (with the exception of USDA II), they reflect the belief that between now and 1985 prevailing patterns of food consumption will hold, that is, there will be no appreciable changes in income distribution between the developed and developing nations. Thus, they assume not only that the average diet in developing nations will remain markedly inferior to that of the developed countries, but that nothing will be done to correct the problem of persistent, widespread malnutrition which now afflicts approximately 460 million people.[34] On the supply side, for the same period, all projections indicate a "trend toward greater and greater dependency on food imports."[35] FAO predicts deficits of 85 million metric tons in the developing countries by 1985; USDA I, 59 million metric tons; USDA II, 78 million metric tons; USDA III, 52 million metric tons; USDA IV, 23 million metric tons; and ISU, between 113 and 118 million metric tons.

The developing world's problem of financing such massive deficits is underscored in a report prepared for the World Food Conference:

> The payments aspect of this vast import can be visualized when it is reckoned that at the 1973-74 average price of cereals of US $200 per ton, an expenditure of $17 billion per annum would be involved; and these countries would also be needing imports of other foods besides cereals. It is clear that under the existing trade arrangements, the majority of cereal importing developing countries would not be able to finance such heavy imports. In that situation, the only alternative would be a deliberate restriction of consumption in these countries by rationing or other means and this would depress their whole economies. That is why it is so important to assess the extent to which these gloomy trends could be altered by engineering a faster expansion of agricultural output in the developing countries.[36]

If growth of agricultural output could be accelerated in developing nations, which is the assumption made by USDA IV, then the food deficit of those nations would be in the neighborhood of 23 million metric tons by 1985, a level which they could more easily finance. This has been the goal of the United Nations since it first announced the Second Development Decade in 1961. It seemed attainable in the late 1960s as the first achievements of the "Green Revolution" became known. Today, however, a growing feeling of pessimism has replaced the confident outlook of that period. "Much evidence suggests, though it is not conclusive and does not fit all developing countries, that the rate of growth of agricultural production has slowed down in recent years."[37] Some nations whose increases averaged 5 per cent or more per year have slipped back to much slower rates of growth.[38]

Authorities cite three reasons for the slowdown. First, whereas the initial gains were made through easy, highly promising projects, future gains must come from projects involving far greater capital outlays and much more complex technology. Second, growth has been slowed because

high yield hybrid strains take time to develop. Third, future growth requires the training of small inefficient farmers who thus far have resisted change.[39] In order to by-pass these bottlenecks serious shortages of resources must be overcome in three areas: (1) agricultural inputs, land for cultivation, water for irrigation, and fertilizers; (2) human inputs, research personnel and teachers; and (3) investment, capital to build infrastructure. Let us discuss these shortages in order.

Scarce land resources. Recent studies by the United Nations Food and Agriculture Committee and the Iowa State University reach similar conclusions that currently only about one-half of the world's land which is suitable for the production of food is under cultivation. The ISU study indicates that the pool of tillable soil stands at 7.8 billion acres, of which only 3.4 billion are in use.[40] The FAO estimates that developing countries are presently farming only one-half of their available acreage.[41] On the surface, these studies suggest that land is not presently a scarce world resource.

However, these generalizations mask some important facts about the land resources of the world. First, in many high density population nations, which taken together constitute a large part of total world population, land usage is nearing 100 per cent of capacity. This is true for the Nile Valley, the Indian Subcontinent, and large areas in the Far East. For these nations, further increases in food production must come from intensive farming of the land.[42] Second, much of the land singled out in the ISU and FAO surveys is found in tropical rain forests or on wind-swept, semi-arid prairies. Attempts to move people to such outposts have been discouraging, as is witnessed by experiences in the Philippines and Indonesia.[43] Third, absentee and feudal landlords control large sections of these lands. In the absence of land reforms, there is no guarantee that they can be put to use.[44] Finally, the cost of bringing new land under cultivation may be beyond the financial capabilities of poorer nations.[45]

Some authorities believe that the ISU and FAO statistics are badly overinflated. Georg Borgstrom, for example, claims that they include land of marginal utility in food production that neither can nor should be put to the plow. He estimates that no more than 950 million acres of tillable virgin land remain uncultivated, and, for the most part, this is found in developed nations.[46] For example, in discussing whether tropical regions can be turned into new "bread baskets" for the world, Professor Borgstrom observes:

> Much glib talk centers around the gigantic and lush forests of the tropics. But few, even among the experts, seem to realize what a false Eldorado these are . . . Extensive studies have been made of these conditions, the most comprehensive and convincing ones by Belgium scientists in the Congo. Their findings provide an explanation of why so much valuable soil was lost when such forests were ruthlessly pulled down over huge areas and the earth laid bare to the scorching sun. Soil temperatures rose by up to thirty centigrades (94°F), which killed all living organisms, including the many microbes of various kinds without which the soil cannot function properly. Still worse was the fact that the

> humus, i.e., the organic substances of the soil, rapidly disappeared. Then the soil became an easy victim of heavy rains, or the opposite, extreme desiccation. In both instances, the topsoil was carried away on a major scale.[47]

Similar attempts by Indonesia and the Philippines to grow conventional foods in the tropics produced much the same results, which may explain why those nations have been unsuccessful in relocating people outside their main islands.[48] By the same token, Borgstrom rules out the use of pasture land for food production. In the absence of adequate rainfall, subject to constant erosion of the soil by the wind, these areas, he demonstrates, rapidly turn into deserts or wastelands unfit for human use at all. As he concludes:

> In the time span 1882 to 1952, deserts and wasteland increased, from about one-tenth of the total land area to nearly one-fourth . . .and still more now. As repeatedly stressed in this book, this enlargement is primarily the consequence of man's intervention and little the result of any secular change in climate. The truth of the matter is that man through his intervention has created more desiccated, denuded and devastated lands than the amount of fertile land he ever created through new tillage and irrigation.[49]

Where truth lies in this controversy is matter for further research and study. The point is, however, that land is a scarce natural resource. Its full mobilization in meeting man's growing need for food more and more rests on our ability to use it intensively.

Scarce water resources. If, indeed, as we have just suggested, man's future food supplies must come more and more from intensive farming, then water becomes one of our most critical resources. "Green Revolution" technology, the introduction of new high-yield grain hybrids, demands abundant water supplies. In fact, in the absence of adequate irrigation, yields from these new seeds will be no greater than from conventional strains. In order to guarantee adequate water supplies, it is necessary, especially in the developing nations, to practice water conservation on an ever-increasing scale. Run-off water must be trapped and stored by dams and fed into agricultural projects by elaborate and costly irrigation systems.

Well over 200 million hectares of land are now irrigated.[50] The People's Republic of China leads the way with nearly 70 per cent of her land being irrigated (approximately 76 million hectares). Among other major irrigation systems are those in India, Pakistan, Taiwan, Egypt, Japan, Israel, and Indonesia.[51] These projects often produce dramatic results in food production. Since building the Aswan dam, for example, Egypt has increased its rice crop by 50 per cent and, even with heavy population growth, has become self-sufficient in corn. Totally, the dam has permitted harvesting three crops a year and has permitted an additional million acres of land to be placed under cultivation (a 10 per cent increase). It is estimated that another

million acres of land ultimately will be reclaimed from the desert for food production.[52]

Management of the world's water resources for use in food production, however, is not without its drawbacks. In some areas, the life span of major dam projects is only a few decades because of silting.[53] To prevent silt from being trapped by the dam, extensive reforestation, which lessens soil erosion, is required, but this, in turn, takes acreage away from food production.[54] In addition, irrigation is accompanied by a serious problem of salinization. Robert Katz explains:

> Diverting river water onto the land raises the subsoil water table, and as the water nears the surface, it inhibits the growth of plant roots by waterlogging. Worse, through evaporation a residue of salt is left in the soil, ultimately rendering it unfit for cultivation.[55]

As this situation accelerates, it turns the land into marshes. Salinization can be controlled by installing tube wells "which tap the water table directly, washing down the salts below the soil."[56] However, in times of drought, or in years when precipitation falls below normal, tube wells often fail, introducing a degree of unpredictability into food production. Moreover, although the installation of tube wells is cheap by our standards, about $1,500, it may be beyond the means of small farmers in developing countries.[57] Finally, the "Green Revolution" has left in its wake the spread of a dangerous disease called schistosomiasis or "snail fever." Currently, it affects some 250 million people, mostly the rural poor, in Asia and Africa. Although, like malaria, it can be controlled by drugs, its control and prevention is costly.[58]

Throughout this brief discussion of water resources, we have suggested that the costs incidental to the kind of irrigation system which fosters "Green Revolution" technology are very high. Robert Katz summarizes the problem:

> It can scarcely be doubted that the environmental problems originating from the world's irrigation requirements will submit to the powers of technology, and the advance of technology is here, too, dependent on capital inputs. The problem associated with capital resources and capital formation are another matter, however. The water needs of the green revolution appear to be rising much faster than the funding capacities under the present inequitable system of capital flow and distribution. This is not the same as saying that the necessary wealth is nonexistent. (ECAFE) estimated in 1971 that Asia's water supplies would have to double by 1980 to keep abreast of its requirements. It is not water that is the missing ingredient; it is the tens of billions of dollars needed for water-resources development.[59]

The problem of scarce water resources also involves persistent problems with the territorial rights of nations. While this was touched on briefly in the discussion of definitions, it requires amplification. Frequently, the water supply upon which nations depend for irrigation comes from rivers

which pass through several nations on their way to the sea. In such cases, one nation, by diverting the water supply or by misusing it, creates serious problems for its neighbors. Conflicts, capable of erupting into war, presently exist over the water rights of the Indus (Pakistan and India), the Nile (Egypt, Sudan, and Ethiopia), the Jordan (Israel, Syria, and Jordan), the Euphrates-Tigris (Syria, Turkey, and Iraq) and to a lesser extent, the Colorado (Mexico and the United States) and the Columbia (Canada and the United States). Unless accords can be reached, these conflicts will deepen in the future.[60]

Increasingly, then, water resources dictate the degree to which food supplies will keep pace with population pressures. In an absolute sense, there is perhaps no natural shortage of water, but the expense involved in conserving and distributing water necessitates its inclusion among scarce world resources.

Scarce fertilizer resources. Like water and hybrid seeds, fertilizer is an essential element in "Green Revolution" technology. Application of fertilizer is not only necessary to achieve high production yields, but it affects the protein content of the grain product, a necessity in any attack on the problem of malnutrition throughout the world.[61] While the technology is extremely complex, food production requires application of several kinds of fertilizers, including nitrogen, phosphate, and potash.[62]

Serious shortages of fertilizers exist at the present time. As a consequence, world prices are at an all-time high. A report prepared by the Economic Research Service of the Department of Agriculture discloses:

> Most nitrogen and P_2O_2 product prices are now at all time highs on the international market. Many experts seem to feel that fertilizer prices are approaching their peaks. Some observers feel that P_2O_2 prices may peak and then level off during the coming year and trend downward by 1976 and 1977 as added capacity comes on stream. Nitrogen prices have not peaked. With added capacity slow in coming on-stream, it may be 3 or 4 years before appreciable price decreases occur.[63]

The net effect of these steep price increases has been a decline in the use of fertilizers in developing nations. The Department of Agriculture reports that "current high prices have caused reduced purchases particularly by developing countries. Short supplies [have] placed an added burden on efforts to increase food production in those developing countries where fertilizer is crucial—especially the relatively land-scarce nations of Asia."[64] India, for example, increased consumption by only 3 per cent in 1973 and 1974, compared with increases on the average of 13.5 per cent since 1967. This pattern holds for a number of other nations as well. "Thus, limited supplies and high prices [of fertilizer] were undoubtedly a factor in slowing food production increases in these countries in 1973 and 1974."[65]

This condition has been produced by a number of forces which render future projections of fertilizer supply and demand uncertain. One such force is the price of oil, since oil is not only a feeding stock from which fertilizers are made but a significant cost factor in operating fertilizer plants. Oil prices may explain why nitrogen fertilizer plants in developing countries are currently operating at less than full capacity (other causes may be worn out equipment and poor management). If they were operating at full capacity, the developing nations could produce a fertilizer surplus of some 1.6 million tons.[66] In addition, severe supply excess predicted in the early 1970s, which retarded the development of new capacity, is only now being attained. Finally, new demand is being placed on existing capacity by the livestock industry which uses forms of fertilizers as a feed supplement.[67] Table 5 projects world demand for fertilizer through 1980.[68]

TABLE 5. Total Plant Nutrient Consumption Forecast

Region	Actual consumption 1972	Consumption forecast—1980 Midpoint	Range Low	Range High	Range variation	Average annual growth rate 1972-1980 Low	High
	(million tons N, P_2O_5, K_2O)				%	(%/year)	
Developed							
North America	16.5	24.3	22.5	26.2	± 7.6	4.1	6.0
Western Europe	17.5	22.6	21.7	23.5	± 4.0	2.7	3.8
Other[1]	4.3	5.5	4.2	6.8	+23.6		6.2
Total	(38.3)	(52.5)	(48.5)	(56.5)	(± 7.6)	(3.0)	(5.0)
Developing							
Latin America	3.2	7.2	6.6	7.8	± 8.3	9.5	11.8
Africa[2]	1.3	2.2	1.9	2.4	+11.4	5.9	9.0
Asia[3]	5.4	10.8	9.6	11.9	+10.7	7.7	10.6
Total	(9.9)	(20.2)	(18.2)	(22.2)	(± 9.9)	(8.0)	(10.7)
Total	(48.2)	(72.7)	(66.6)	(78.7)	(± 8.3)	(4.2)	(6.3)
Eastern Europe-USSR	18.9	32.0	30.1	33.9	± 5.9	6.1	7.6
Other Asia	4.9	9.1	8.1	10.1	+11.0	6.6	9.6
World	72.3	113.7	104.8	122.6	± 7.8	4.8	6.9

[1] Includes Japan, Israel, Republic of South Africa, and Oceania.
[2] Excludes Republic of South Africa.
[3] Excludes Japan and Israel.

A number of factors will influence the development of the necessary supplies, not the least of which are high energy costs. As for the developing countries:

> [They] are scheduling additions to capacity that will more than double present levels by 1977. The opportunity exists for them to make significant inroads into the large trade deficit they already have. In fact, by 1975 the developing regions could become net exporters of nitrogen if all of the existing plants and those that are planned for the next five years were to operate at anything near their full capability. Should they continue their relatively poor performance, however, the developing regions will remain net importers, requiring 1 to 2 million tons of nitrogen above their own output.[69]

As is usually the case when one attempts to generalize about a whole block of nations, predictions of this kind overlook individual differences. Regardless of effort, some developing nations will remain highly dependent on the vagaries of world supply and demand: When supplies are unavailable, or prices too high, should they be expected to sacrifice vitally important food production? The World Food Conference addressed itself to this dilemma and concluded that new safeguards are urgently required.[70]

Scarce human resources. The world food picture is affected by scarce human resources in two important aspects. First, bottlenecks are occurring in the spread of modern agriculture because of lack of skilled farm personnel. Second, research is lacking in a number of key areas of food technology.

As we noted earlier, the increase in food production in developing nations has slowed because, in part, development has moved past the most efficient producer to marginal farm laborers who lack both the skills and the motivation to apply "Green Revolution" technology. Willard W. Cochrane in *The World Food Problem: A Guardedly Optimistic View* characterizes the small farmer in most developing countries:

> The typical farmer in a traditional situation is an illiterate person who cannot read a newspaper, has never heard of a farm journal, and has almost no appreciation of the man-made laws under which he lives or the fundamental cause-and-effect relationships in the physical world which control his production possibilities. Today he probably has some access to radio communication, but information from that source comes from the outside world which he does not know or trust. He is one of the "simple folk" who live in a village and fears everything outside his intimate family circle—the police, the tax collector, the moneylender, the headman of the village, the town merchants, the army, the weather, the faraway government, and an unknown collection of gods. He lives in a world of fear and ignorance with a farm production system and a level of technology handed down to him from time immemorial.[71]

It is apparent that intensive retraining must be completed before these farm workers can master the sophisticated methods of modern agriculture with their demands for proper water management, fertilization, and processing. A number of motivational factors thwart efforts to retrain the marginal farmer at the present time. In a number of developing countries, food prices are artificially set and controlled by the government in order to

sustain large populations in urban areas. *Not only do such policies tend to* encourage migration to the city from the farm, but they also undercut the profit incentive of the small farmer. Why should he invest (if, indeed, he has, or can find, capital) in the agricultural inputs which are necessary to increase his yield when he may receive less for his product than the cost of producing it? In his mind, the better approach is to follow the time-honored practice of raising just enough to feed himself and his family, and a little bit more to exchange for necessities which he cannot produce for himself.

Companion to this problem, of course, is that of absentee or feudal land ownership. The net effect is the same. Like government managed prices, the absentee landlord levies what amounts to a tax on the labor of the small farmer, which destroys his incentive to produce more. In addition, farm size in developing countries often discourages efficiency in project planning and development. With small farms of two or three hectares the norm, the individual farmer seldom possesses the capital to install the infrastructure which is necessary for modern agriculture. Quite obviously, a need exists not only for capital inputs in these areas, but for some type of co-operative farming (not necessarily commune or collective farms) which by spreading costs will permit the small farmer to modernize. In this regard, some authorities also call for insurance programs to protect the small farmer against crop failures.[72]

Reports prepared for the World Food Conference emphasize the fact that declining rates of food production in underdeveloped nations will not regain their lost momentum until the small farmer is made part of overall developmental plans. Extensive social, structural and institutional changes must occur before this can be accomplished.[73]

Many delegates to the World Food Conference singled out research as one of the high priority items on the agenda to stave off world hunger. One area of research mentioned—research to study the impact of food production on water and land resources—already has been described. The relationship between climate and food production also was cited as requiring urgent attention.[74]

In recent years, a number of climatologists have claimed that the earth is cooling at a rate which may presage the coming of a new ice age. Their conclusions rest, partially, on the effects which man-made pollution—principally dust and particulate matter—has had on the earth's atmosphere. A full discussion of their findings is outside the limited scope of this analysis. However, widespread concern does exist. Therefore, answers are being sought to such questions as: How fast are these changes occurring? How are they affecting present world weather patterns? Are there early warning signs of weather changes which will produce crop failures? How can we correct the damage that has been done?[75]

Finally, more research is needed to discover ways of reducing losses to crops from fungus, pests, and rodents both before harvest and during processing, storage, and distribution. Estimates of the losses in the food supply from these sources range upward of 25 per cent of the total yield.[76]

Scarce capital resources. It should be apparent at this point that the problem of stimulating food production in developing countries is one that requires massive capital outlays. It entails installing whole irrigation systems, draining swamps and marshlands and, if technically feasible, clearing jungles and tropical forests. But more, it means creating a new agricultural technology in many nations from the small farmer upward. Cost estimates vary, but all authorities place them in the billions. These will be described in detail in Section III.

The problem was summarized for the World Food Conference in the following terms:

> A principal factor required to achieve the food production goals is a major increase in the funds available to developing countries for agricultural and rural development. The present flow of external resources for agriculture in developing countries is about U.S. $1.5 billion per annum. It would seem necessary to increase this to at least U.S. $5 billion per annum in the next five years between 1975 and 1980. This would facilitate stepping up the rate of total investment in agriculture to a range of U.S. $16 to U.S. $18 billion during this period.[77]

Scarcity in Energy Resources

In a physical sense, energy is the "capacity for doing work and overcoming resistance." Any substance which fuels man himself, his domesticated animals, his machines and his factories, therefore, is a source of energy. Today these substances are normally classified under four headings: solar energy, fossil fuels, nuclear fuels, and geothermal energy.

Solar energy consists of those resources which are produced by the sun: food substances for man and animals, fuel wood, direct wind power, direct water power, hydroelectricity, tidal power, track combustion, and direct solar energy convertors. Fossil fuels include coal, petroleum, natural gas, oil, shale, and tar sands. Nuclear fuels take two forms: fuels derived from the fission of uranium and thorium, and fusion power. Geothermal energy is obtained by harnessing the internal heat of the earth.

Taken as a whole, it is safe to say that the energy resources of the earth are inexhaustible. Solar energy is large in magnitude and unlimited in time. Nuclear fuels are practically inexhaustible, particularly if breeder reactors are able to utilize the common isotopes of uranium and thorium.[78] This is not to say, however, that all forms of energy are inexhaustible. By any accounting, at present rates of consumption our store of fossil fuels, for example, will be used up in a matter of centuries.

At the present time, the developed nations meet their energy needs principally through the combustion of fossil fuels. In the United States, which can be taken roughly as a model for industrialized countries, 41 per cent comes from petroleum, 33 per cent from natural gas, 20 per cent from coal, 4 per cent from hydroelectricity, 1 per cent from nuclear power, and 1

per cent from miscellaneous sources—wood power, wind, water power, etc. The developing nations rely much less on fossil fuels, substituting for them energy derived from the direct labor of man and animals, wood, wind power, and water power. Table 6 shows energy use for the world in 1970 as a whole:[79]

TABLE 6. Use of World Energy Resources, 1970

Source	%
Fossil Fuels	—
Coal	30
Petroleum	36
Natural Gas	18
Solar Energy	—
Hydroelectric	6
Miscellaneous (wood, water, wind, feed)	10

More specifically, in 1970 the world consumed approximately 2,700 million tons of coal, 8.5 million barrels of oil, 30.6 trillion feet of natural gas, and 1.7 billion kilowatts of hydroelectricity. Industrial nations use about 7 times as much energy as their less developed counterparts. The United States accounts for over one-fourth of world consumption, and United States energy needs alone are projected to double between 1970 and the year 2000 and double again in the following 70-year period. Table 7 gives projections for the world between 1970 and 2070:[80]

TABLE 7. World Energy Needs, 1970-2070

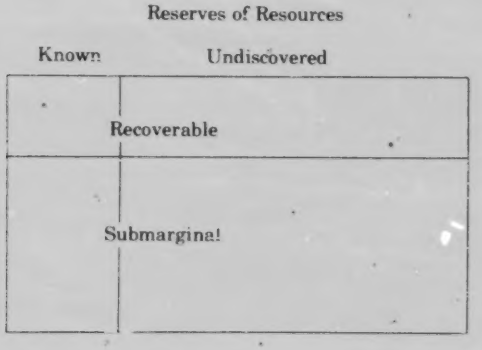
(1 c = 10^{15} BTU—British Thermal Units)

Region	1970-2000	1970-2070
United States	300	1600
Other Industrial	800	2800
Non-Industrial	200	800
World	1300	5200

In assessing the capacity of the world's energy supplies to meet these demands, which are growing exponentially, it is important that we understand how experts estimate energy resources. Let us begin by noting that some resources are "recoverable reserves." These are deposits which have been discovered and are currently being produced commercially or could be brought into commercial production. Other energy resources are referred to as being "submarginally recoverable." These are deposits that are known to exist but which cannot be profitably exploited at current market prices. For example, the United States has vast known reserves of oil which can be extracted by water-flood or fire-sweep production; these are classified as "submarginal resources" because they cannot be marketed profitably at

today's prices (or at least they could not before the energy crisis).

In addition to "recoverable and unrecoverable resources," we speak of "undiscovered resources." Because minerals are found in certain rock formations and at certain depths, geologists are able to make educated guesses about the probability of finding minerals once a certain formation is known. If probabilities are very high that a given mineral is present and can be profitably mined, then it is classified as a "recoverable undiscovered reserve." If it is believed to exist but would require expensive technologies to recover it is called a "submarginal undiscovered resource." These methods for describing reserves of resources can be diagrammed as follows:



On the basis of all these considerations, Geoffrey Chandler, president of the Institute of Petroleum, has estimated that total world energy consumption in the year 2000 will be 5.5 x 10^9 oil equivalent tons. World resources in 2000 (oil expressed as oil ton equivalent) will be as follows: fossil fuels (ultimate reserves of coal, oil, gas, shale, and tar sands), 5 x 10^{12}; nuclear energy from fission (total fission fuel if used in current reactors), 0.1 x 10^{12}; nuclear energy using breeders, 15 x 10^{12}; nuclear fusion, 35,000 x 10^{12}; world solar input, 125 x 10^{12}, hydropower, 25 x 10^8; geothermal power, 1 x 10^8; useable tidal energy, 0.5 x 10^8. Chandler assumes that the technology to produce newer forms of energy will emerge, but, in any event, his projection indicates no shortage of energy for expected uses.[81] With respect to petroleum resources, known reserves are approximately 91,000 million tons, enough to last at present rates of consumption for 35 years; petroleum resources are estimated at 300,000 million tons. The picture for natural gas is almost identical to that for oil. Oil shale resources are approximately 4,000 x 10^9 barrels of oil. Coal resources are about 34,000 x 10^9.[82]

All authorities make the point that the energy resources of the world are inexhaustible. As we deplete our fossil fuel resources, the energy they supply currently can be replaced by new sources of supply; indeed, as we deplete a specific fossil fuel-oil other fossil fuels can be used in its place. An

abundant future supply of energy, then, is limited only by man's will power and his technology.

Are there serious technological barriers to the development of new energy resources? Most experts believe that the technology necessary for widespread use of solar, geothermal, and fusion power will not develop until some time in the future, although generally they are confident it will exist when the need for it arises.[83] As for conversion of coal to liquid or gas (coal liquefaction and gasification), the technology was developed and used by Germany in World War II and is employed presently in South Africa. The only barrier to its more general use is price and the fact that converting coal to forms of oil and gas is an expensive way of using energy because the process requires energy (heat) in order to make the conversion.[84]

Can new energy supplies be produced at commercially acceptable prices? Again, the answer appears to be yes. In the case of coal gasification and liquefaction, costs would fall dramatically if the industry were to expand enough to take advantage of the economics of scale. This observation is based on the economic assumption that "every time there is a doubling of the total number of units manufactured, transported, or processed in some economic activity, there results a fixed percentage decline in unit cost."[84] This is not to say, however, that the ultimate price would be as low as the price of oil before 1973. But, in time it probably could be brought below prevailing crude oil prices.

At this point, we have reached the real "heart of the matter" concerning use of energy resources. Price, not natural shortages or a lack of technology, really dictates what energy resources will be used. And here we are speaking less in terms of economic costs than in terms of social and political costs.

As was seen in the definitions which began this section, resources may become scarce because society limits or prohibits their use. Quite naturally (and with justification if we believe our climatologists), we do not wish our atmosphere polluted with noxious wastes from industrial activities, nor are we willing to accept the dangers of oil spills, the thermal pollution of our rivers, the chance of radio-active contamination from nuclear power plants or, more recently, the possibility that nuclear fuels can be stolen and turned into crude bombs with which to blackmail governments. As a consequence, the United States (and other industrial nations as well) has empowered agencies such as the Environmental Protection Agency and the Atomic Energy Commission to oversee and enforce strict anti-pollution laws. These agencies directly affect price in two ways: by insisting upon the installation of expensive anti-pollution equipment, they raise the costs of production, costs which are passed on to the consumer in the form of higher prices; and they affect prices by injecting uncertainty into the development of energy supplies. What electric company is willing to invest in nuclear power plants if there is a risk that those plants will be shut down at some future date for environmental reasons? Similar risks face the investor in developing plants for coal gasification. Hence, laws regulating industrial use of the environment tend to retard the development and introduction of new energy sup-

plies even though their introduction might lead to lower prices in the market place. In short, long-range social costs often are deemed to outweigh short-run economic ones."[86]

But environmental protection legislation also interacts with prices in the market place in a manner which plays into the hands of monopolistic forces. John C. Fisher, in *Energy Crisis in Perspective*, describes how this phenomenon is at play in today's energy crisis. As enforcement of the Environmental Protection Act took hold, he explains, more industries, especially electric utilities, shifted from "the use of highly polluting coal or uranium that they had intended using to the use of oil."[87] At the same time, because new pollution controls on automobiles lowered gas mileage, they raised demand for gasoline. Increasingly, American oil companies went abroad to find supplies to fill this new demand, principally to producers in the Middle East. As our dependency rose, conditions ripened for the type of cost squeeze in which we find ourselves today.

Middle East oil reserves amount to ten times United States oil reserves, and to more than half of the entire world's reserves.[88] Furthermore, the cost of producing oil in that region is only about ten cents a barrel. Because of these extremely low costs, Middle Eastern nations became almost the sole suppliers of Europe in the 1950s and 1960s. In order to protect domestic American oil interests, this nation traditionally has set oil import restrictions on foreign oil. Even with our import restrictions, however, the temptation to take advantage of cheap Middle Eastern oil has been irresistible. Triggered by the oil embargo imposed by Middle Eastern countries during the 1974 Israeli-Arab war, oil prices rose rapidly in 1974 and remain at the same high level today, approximately $11 a barrel.

The OPEC (Organization of Petroleum Exporting Countries) cartel now virtually dictates both energy costs and energy usage throughout the world. The industrialized nations of the West (and Japan) have not had time to develop cheap, reliable alternatives to high cost OPEC oil—for example, the Alaskan field wells in the North Sea, or new technologies such as coal gasification. If oil prices were to consistently remain at current high levels, Western nations doubtless would develop alternative supplies (the Alaskan oil fields and the North Sea development will continue in any event). However, the strength of OPEC's position is seen by the fact that it possesses the ability to preclude the development of competing sources which could break its monopoly over world energy. By the simple expediency of threatening to lower prices (remember it produces oil at 10 cents per barrel), it can so increase the risk to investors that they will be unwilling to underwrite projects. Nor does OPEC's power stop there. It can retaliate against nations that try to develop independent energy sources by selling oil to those nations' competitors at greatly reduced prices, thus placing the products of nations which are trying to break away at a competitive disadvantage in world trade.[89]

There are some signs that the OPEC cartel is beginning to disintegrate. Oil surpluses have built to dangerous levels, and OPEC nations have cut

back on production in order to support the present high price. Because some of the OPEC countries are heavily engaged in modernizing, and depend on revenues from oil to finance these projects, some authorities believe that they will break the line, thus starting a price war that will bring petroleum costs down. Other authorities tend to discredit this view. Vast amounts of surplus capital are building up in certain of the OPEC nations, among them Saudi Arabia, and these can be used as bait to keep other members of OPEC in line.[90]

Meanwhile, the energy crisis is devastating not only the industrialized nations, but especially the developing ones. As we have seen, some developing countries have been forced to cut back on fertilizer purchases. All of them are being drained of investment capital by massive deficits in their payment position.

Scarcity in Mineral Resources

In broad outline, the forces that work to create shortages in the world's energy supply also have the potential to cause shortages of other mineral resources. Before we test this hypothesis, however, let us briefly sketch a profile of the world's mineral supply.

In the industrial production of goods and services, man uses about 90 minerals found in the earth's crust or on the ocean floor. Some of these minerals exist in superabundance and are distributed widely throughout the world. Iron, for example, conposes about 5 per cent of the earth's crust and deposits of it have been discovered in most regions of the world. Other minerals, such as copper, lead, and zinc, are relatively scarce; only traces of them are found in the earth's crust and these are concentrated in certain localities. Space does not permit a complete listing and analysis of all these minerals with estimates of their reserves and locations, but this information can be obtained by writing the U.S. Bureau of Mines.

In using these minerals, "man can obtain similar if not comparable properties from more than one."[91] This is to say that their uses often are interchangeable. Thus, if one mineral were to become scarce, other minerals could be substituted for it with the same desired effect. Like energy resources, therefore, the mineral wealth of the world must be assessed as a whole with the realization that as shortages occur in the use of a specific mineral, other minerals can be employed in its place. James Boyd expresses this key concept in his article, "Minerals and How We Use Them":

> In talking about the interchangeability of the materials available to import the required properties, we are in fact assuring supplies of properties in such magnitude that they cannot run out in any imaginable period.[92]

While true in principle, this observation does not consider short run difficulties resulting from technology and the economics of supply and demand. In

theory, we might be able to build automobiles from sand and gravel, but until the need to do so arises, it remains cheaper to construct them from steel and a host of non-ferrous materials.

In addition to technological substitution, the supply of world mineral resources is affected in two other ways. First, new means are being developed by discovering economically recoverable sources of supply. The Earth's Resources Satellite, for example, enables geologists to gain a more precise picture of the earth's surface and the composition of minerals in a given area. Moreover, huge deposits of scarce minerals, such as copper, nickel, molybdenum, and cobalt, have been discovered on the ocean floor. Second, it is possible to recycle many minerals at higher levels than in the past. As with technological substitution, however, new discovery and recycling are functions of the economic costs of production. Thus, they probably will not be significant forces affecting supply until the need for them arises.[93]

World demand for minerals is increasing rapidly. Eugene Cameron, professor of geology at the University of Wisconsin, has devised a list of 18 selected minerals which he believes are barometers to future trends in production and consumption. On the basis of this sample, Cameron projects that in the future, mineral demand, following the trends of the past two decades, will double every seven or eight years. Thus, world demand for this select group of minerals will stand at about 3.5 billion tons by 1980 and at about 7 billion tons by 1990.[94]

This enormous projected increase in mineral comsumption will almost certainly intensify competition among industrialized nations as each scrambles for a share of the available supply. No industrial nation is self-sufficient in minerals. Even the United States, which is richly endowed, will have to go overseas increasingly to fill its demand for virtually every mineral it uses. In this competition, social and political forces can operate, as we have seen in the case of energy, to create serious shortages and to affect price.

Many of the same environmental concerns that control use of energy forms also influence use of other minerals. Mining operations, for example, are primary polluters of water resources. In addition, strip mining practices despoil the land. The transportation of certain processed gaseous or explosive minerals may present hazards to public health and safety. Restrictions over the development and supply of thise minerals out of concern for the environment may result, as it did with petroleum, in our becoming dependent on foreign supplies. By the same token, economically recoverable deposits of some minerals, again like petroleum, are sufficiently concentrated in a few areas of the world to permit their control by a cartel of producers (the major suppliers of copper, nickel, molybdenum, and cobalt perhaps have this capability at the present time), in which event artificial shortages could occur and prices could be manipulated upward.[95]

Other political factors at play in the development and allocation of scarce world resources, which were touched on only in passing in the discus-

sion of energy, require amplification. First, developing countries are major suppliers of many minerals used in industry. In the past, governments in developing countries have signed away the right to exploit their minerals to foreign-based mining companies. As a consequence, much of the wealth of the underdeveloped world has flowed to industrialized nations. Realizing this fact, leaders in developing countries are progressively nationalizing the mines in their nations. Called expropriation, this practices tends to discourage the flow of investment capital from the developed to the underdeveloped nations, not only because investors risk losing their capital but also because the profit motive is substantially diminished. Nationalization is controlled partially by international agreements, but these contols frequently do not protect the investor against loss. The reason is explained in the following passage:

> Control by a government lacking in training and experience in exploration and mining ventures is less profitable. Add to this that the purchase price [in compensation for expropriating the mining company] often is paid in bonds issued by the host country payable over a long period in the steadily inflating currency of the host country and subject to cancellation if an even more extreme regime should achieve power, and the prospect for mining abroad seems less attractive.[96]

The net effect from expropriation may be to create additional shortages because the exploration and development of the world's mineral resources will not keep pace with the on-rushing demand.

Second, supply of mineral resources is often dictated not by economic considerations but by the climate of international politics. The use of petroleum by the Arab states as a lever to force the United States and Western Europe to alter their stance toward Israel is a case in point. In the future, the door is not barred to other nations who might wish to use their mineral wealth as a weapon for extracting political concessions.

SECTION I FOOTNOTES

1 United Nations, Economic and Social Council, "World Population Conference," Agenda Item 5, October 2, 1974 (E/CONF. 60/19), p. 5.

2 Frank W. Notestein, "Population Growth and Its Control," in *Overcoming World Hunger*, ed. Clifford M. Hardin (Englewood Cliffs, N.J.: Prentice-Hall, 1969), pp. 16-17.

3 *Ibid.*, p. 18. Note that demographers make projections on the basis of three variants, low, middle, and high. These variants reflect certain assumptions made about population trends. For example, the low variant included here projects future populations on the assumption that means to control birth rates will be extraordinarily successful. Throughout this study an attempt has been made to express population projections in terms of the medium variant.

4 A.S. Parkes, "Human Fertility and Population Growth," in *Population and Food Supply*, ed. Joseph Hutchinson (Cambridge, England: Cambridge University Press, 1969), p. 13.

5 "World Population Conference," p. 5. The numerical extrapolations are the author's.

6 Willard W. Cochrane, *The World Food Problem: A Guardedly Optimistic View* (New York: Thomas Y. Crowell Co., 1969), p. 14.

7 Parkes, "Human Fertility and Population Growth," pp. 14-15. Fertility is used here in the demographical sense of actual performance in reproducing, not in the biological sense of ability to reproduce.

8 "World Population Conference," p. 7.

9 *Ibid.*, p. 5.

10 *Washington Post, Potomac* Magazine, 23 February 1975, p. 13.

11 Georg Borgstrom, *Too Many: An Ecological Overview of Earth's Limitations* (New York: Collier Books, 1969), p. 2.

12 Clifford Hardin, "For Humanity, New Hope," in *Overcoming World Hunger*, ed. Clifford Hardin (Englewood Cliffs, N.J.: Prentice Hall, 1969), p. 2.

13 Notestein, "Population Growth and Its Control," p. 25.

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16 Parkes, "Human Fertility and Population Growth," p. 27.

17 United Nations, World Food Conference, "The World Food Problem—Proposals for National and International Action" (Limited Distribution, CSD/74/34), p. 5.

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20 *Newsweek*, Nov. 11, 1974, p. 68.

21 *Ibid.*

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24 United Nations, World Food Conference, "Assessment of the World Food Situation" (Limited Distribution, CSD/74/34), p. 15.

25 United States Department of Agriculture, Economic Research Service, "The World Food Situation and Prospects to 1985," Foreign Agriculture Economic Report No. 98 (Washington, D.C.: December 1974), p. 1.

26 *Ibid.*, p. 7.

27 "Assessment of the World Food Situation," p. 19.

28 *Ibid.*

29 "The World Food Situation and Prospects to 1985," p. 3.

30 *Ibid.*

31 "Assessment of the World Food Situation," p. 19.

32 *Ibid.*, p. 2. See also, p. 18.

33 "The World Food Situation and Prospects to 1985," p. 35.

34 *Ibid.*, pp. 32-39.

35 *Ibid.*

36 "Assessment of the World Food Situation," p. 7.

37 *Ibid.*, p. 5.

38 *Ibid.*

39 *Ibid.*

40 "The World Food Situation and Prospects to 1985," p. 58.
41 *Ibid.*
42 *Ibid.*, p. 59.
43 *Ibid.*
44 Borgstrom, *Too Many*, pp. 302-304.
45 "The World Food Problem: Proposals for National and International Action," p. 8.
46 Borgstrom, *Too Many*, p. 304.
47 *Ibid.*, p. 11.
48 "The World Food Situation and Prospects to 1985," p. 58.
49 Borgstrom, *Too Many*, pp. 294-295.
50 "The World Food Situation and Prospects to 1985," p. 70.
51 *Ibid.*
52 Robert Katz, *A Giant in the Earth* (New York: Stein and Day, 1973), p. 125.
53 Borgstrom, *Too Many*, p. 203.
54 *Ibid.*
55 Katz, *A Giant in the Earth*, p. 126.
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59 *Ibid.*, p. 127.
60 Borgstrom, *Too Many*, pp. 206-223.
61 A full discussion of protein and fertilizer is found in *World Protein Resources* (Washington, D.C.: American Chemical Society, 1966). In addition, there is a discussion of how proteins can be synthesized. The discussion, however, transcends the limited purposes of the *1st Analysis*.
62 "The World Food Situation and Prospects to 1985," p. 65, compares the area, yield, and production of all grains for developed and developing countries.
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67 *Ibid.*, p. 67.
68 *Ibid.*, p. 70.
69 *Ibid.*, p. 79.
70 "The World Food Problem: Proposals for National and International Action," pp. 5-6.
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82 T.F. Gaskill, "Future Petroleum Supplies—Onshore and Offshore," in *Engergy: From Surplus to Scarcity?* ed. K.A.D. Inglis (New York: John Wiley and Sons, 1974), p. 29.

83 *Ibid.*

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92 *Ibid.*, p. 6.

93 David Swan, "Science and Technology: Aid and Hindrance," in *The Mineral Position of the United States, 1975-2000*, ed. Eugene N. Cameron (Madison: University of Wisconsin Press, 1973), p. 88-89, 93.

94 Eugene N. Cameron, "The Contribution of the United States to National and World Mineral Supplies," in *The Mineral Position of the United States, 1975-2000*, ed. Eugene N. Cameron (Madison: University of Wisconsin Press, 1973), pp. 18-19.

95 Roger D. Hansen, "The Politics of Scarcity," in *The U.S. and the Developing World: Agenda for Action, 1974*, ed. Jack W. Howe (New York: Praeger Publishers, 1974), pp. 51-65.

96 John Drew Ridge, "Minerals from Abroad: The Changing Scene," in *The Mineral Position of the United States, 1975-2000*, ed. Eugene N. Cameron (Madison: University of Wisconsin Press, 1973), pp. 132-133.

LIBRARY EDITION AVAILABLE

Political Reform, the 1974-75 Library Edition of *The Forensic Quarterly* is available from the National office at $5 a copy to members. The year of Watergate was memorable and, it is hoped, unique in the American experience. It will be the subject of discussion and research for many years. This compilation of the thoughts of political reformers (and non-reformers), written for the most part as events were unfolding, should prove to be a valuable permanent addition to school libraries for the benefit of future students who will want to know "how it was" in 1974 when the first American President resigned. The edition may be ordered, prepaid, from: National Office, Committee on Discussion and Debate, National University Extension Association, Room 53, Prince Lucien Campbell Hall, University of Oregon, Eugene, Oregon 97403.

SECTION II. PRESENT CONTROLS OVER THE DEVELOPMENT AND ALLOCATION OF SCARCE WORLD RESOURCES

In this section, we shall be concerned with the interplay of trade, economic assistance, and international monetary structures in the development and allocation of scarce world resources. As in Section I, let us begin by defining some key terms.

Definition of Development and Allocation

Development. The term is defined as "causing to grow gradually, fuller, longer, better; especially to make more available, or extensive." In the context of economics, development is a consequence of man's efforts to satisfy his wants and needs through the production of goods and services. Since, for all purposes, these are inexhaustible, development is an on-going process which builds from one level to the next.

It should be apparent that development is measured quantitatively and qualitatively. While the current need, when projected against growing population demands, is to expand the supply of scarce resources, for example, grow them quantitatively; it is also recognized that growth must be sound, i.e., it should not be accomplished by destroying the environment, nor should it lead to greater inequities in the total use of world materials. The type of development called for in the 1975-76 resolutions, then, is rational, stable, orderly, and equitable growth which aims at totally appreciating world resources. The pattern of development can be quite asymmetrical, the supply of some resources growing rapidly with others growing more slowly or not at all. Indeed, increasingly, negative growth or development, especially in population and use of resources which damage the world's ecological system, is accepted as a desirable social and economic goal.

What causes development of resources? In general, its handmaidens are the factors of production—surplus of materials, labor, capital, management, and technology. The marshaling of these factors is normally beyond the capability of any single individual or nation. Therefore, development requires cooperation among people and countries. And cooperation, in turn, is facilitated through trade (the exchange of resources, goods, and/or services), economic assistance (monetary or technical support which aims at building the infrastructure of production, aid (outright grants, or highly favorable loans, of money, goods, and/or services), and financial and monetary structures that promote commerce (banks, lending institutions, and the international currency arrangements). The trade, economic assistance, aid, and financial policies of nations are shaped by a number of considerations: to protect their sources of supply, to buy goods and services at the lowest cost, and to build markets for their own products. Among these, security considerations bulk large at the present time. In this section, then, development (of scarce world resources) will be viewed in the context of international trade,

economic assistance and aid programs, and international monetary systems.

Allocation. This term is used in two ways. First, it means "to set apart for a particular purpose." Thus, in the allocation of the land resources of the United States, certain areas are set apart for use as national parks and forests. By the same token, city zoning laws allocate space for specific purposes—residential, commercial, and industrial. Efforts to practice conservation are also a form of allocation in this sense of the word. Second, allocation means "to divide, distribute, or parcel out." The federal budget allocates in this meaning, since it divides money among the branches and agencies of the government according to their needs.

Scarce world resources are currently allocated in two ways: through pricing mechanisms which observe laws of supply and demand, and through direct intervention of governments. By any accounting, in the Free World at least, pricing mechanisms are the more dominant of the two. Commodities and materials are bought and sold in the world market place. Those nations able to meet the prevailing prices end up with the lion's share; those nations that cannot meet world prices must tighten their belts and do without. Since, for obvious reasons, this system of distributing goods and services produces inequities among nations, governments intervene directly to equalize allocations. In effect, such interventions are a kind of subsidy. Loans, economic assistance, and preferential trading arrangements are illustrations of direct government intervention to affect allocations of wealth. Governments also intervene for other reasons; for example, they may refuse to trade freely for reasons of national defense or to protect their own domestic producers from foreign competition.

Allocation of resources affects their development. Growth cannot proceed in an orderly, rational, and stable manner when imbalances of supply and demand occur because of either failures in the pricing mechanism or direct government interventions. By permitting an international organization to control scarce world resources, the 1975-76 resolutions seek to influence their development by substantially modifying the economic and nationalistic forces that control their allocation at the present time.

Development and Allocation through Trade

"No other international system is as important for the development of poor countries" as trade.[1] Eighty per cent of their foreign exchange is earned from supplying raw materials to the industrialized world. In contrast, only slightly over 10 per cent comes from economic assistance and aid programs.[2] Between 1960 and 1970, the trade of developing countries generally conformed to the world pattern which increased at an average annual rate of 9 per cent.[3] During this period, however, the prices the developing nations received for their exports did not keep pace with the prices they had to pay for the manufactured goods they imported; hence, they experienced persistent trade and balance deficits.[4] In 1973 marked improvements occured in

their terms of trade, a shift of nearly 6 per cent over the preceding year. This improvement held until midway through 1974 when the demand for most primary commodities declined sharply. As a result of this decline, the non-oil producing developing nations suffered a trade deficit of $7 billion in 1974. This led C. Chung-Tse Shih of the United Nations Council on Trade and Development to term their prospects "particularly critical."[5]

Not all developing countries experienced these reverses. The OPEC (Organization of Petroleum Exporting Countries) nations, many of which are technically classified as underdeveloped, ran massive exchange surpluses of $85 billion. In addition, Brazil, Malaysia, Taiwan, and Singapore developed surpluses.[6] The 40 nations hardest hit were those classified by the United Nations as "least developed," those "who because of extreme poverty, slow growth rate, and poor prospects for development—whose total population is about one billion people—might be called a 'Fourth World' of development."[7]

Despite the great need of these "Fourth World" countries, trade barriers against their manufactured products have been higher in the past than those directed against the manufactured goods of industrialized nations.[8] Trade barriers are designed to serve many purposes and take many forms. Among these, tariff barriers are the chief obstacles to trade. A tariff is a kind of tax levied by a nation on the products of other nations which enter its territory. Historically, tariffs were first imposed to raise revenue; currently, they are used more often to protect domestic producers against foreign competition by raising the price of foreign goods and, thus, discouraging their importation. Tariff schedules also have been used politically as a means of cementing alliances, with nations agreeing to grant special trade privileges to their allies.[9]

In addition, international trade is constrained by a long list of non-tariff barriers. Nations impose quotas which limit the amount of goods that can come from any one nation. They specify the use of certain forms of transport and may require the purchase of insurance and special import licenses; they may exclude products that do not meet standards of health and safety; and they may prohibit trade with unfriendly nations. Until recently the United States prohibited trade with China and the Soviet Union and still prohibits trade with Cuba.[10]

Tariffs and non-tariff barriers are negotiated today in forums such as the United Nations Conference on Trade and Aid (UNCTAD), the General Agreement on Trade and Tariffs (GATT), and the Organization for Economic Cooperation and Development (OECD). With the exception of UNCTAD, these organizations have been accused of being "clubs for the rich nations." Indeed, as membership in them has grown efforts have been made to adopt schemes for weighted voting which would have the effect of lodging effective power in the hands of a few industrial powers. To this point, these attempts have been beaten back and GATT, in particular, is emerging as a truly international forum.[11] The next phase of negotiations, the long delayed Tokyo Round, is scheduled for sometime early in 1975. Roughly 90 nations

are expected to attend, some 75 per cent of which will be from the developing world.

High on the agenda in the Tokyo Round will be a proposal for extending preferential tariff treatment to underdeveloped countries. Essentially, this plan calls for allowing the manufactured and semi-manufactured products of developing countries to enter the markets of developed countries duty free. Both the European Economic Community (FEC) and the United States Congress have agreed in principle to the scheme, which is envisioned as increasing the exports of developing nations gradually over the next decade.[12] However, some authorities are beginning to question whether preferential tariffs will have the hoped-for effect. In order to appreciate their concern, let us briefly examine the United States Trade Reform Act of 1974 to see how it might work in practice.

While the act would permit the duty-free importation into this country of many manufactured and semi-manufactured products from under developed counties, it also contains important provisions that, according to Guy F. Erb of the Overseas Development Council, would possibly "dilute the possible benefits of the scheme":

> . . . [P]roducts eligible for preference are mainly to be manufactured goods. Many primary products, semi-processed agricultural items and certain import-sensitive products in the manufacturing sector will be excluded. Another stipulation would deny preferential treatment to a country which supplies either 50 per cent of the amount of total U.S. imports of an eligible article or more than 25 million on an annual basis. Moreover, the President is authorized to withdraw, suspend or limit preferences at any time.[13]

Using 1971 data, the Overseas Development Council estimated the total impact as very possibly minimal. Of the $11.5 billion in imports from developing countries in 1971, only "$7.5 billion were dutiable and, therefore, eligible for trade preferences." Included in these, the Council points out, are many restricted items and "import sensitive goods" which would not be accorded preference. "Estimates of total U.S. imports in 1971 that might have been eligible for preferences before the application of the $25 million-50 per cent limitation are about $2.8 billion. After the application of that rule, however, the U.S. preference would have applied to about $1.1 billion or about 10 per cent of all U.S. imports from poor nations in 1971." And this amount could have been further whittled by the President's withdrawing, suspending, or limiting preferences.[14]

The developing nations hope through negotiations not only to increase the total number of items which will be permitted to enter duty free (the ODC estimates this could be nearly doubled), but to define and limit the conditions under which preferences could be suspended by an industrial nation without paying compensation. In this regard, provision in the United States Trade Reform Act for adjustment assistance to American workers whose jobs are jeopardized by the new tariff rates becomes of key impor-

tance. If the tariff's impact on employment in American industries is mitigated through such means, then presidents would have less reason to order suspension and the list of preferential items could be broadened.[15]

In an informal statement published in October 1974, the EEC hinted it was willing to extend the preferential treatment now given to its 19 associate members (principally former French and Belgian colonies, the African, Caribbean, and Pacific "associables," independent Commonwealth countries, and others such as Ethiopia) to all of the poorer countries. It also agreed to discontinue its policy of "reverse reciprocity" whereby the country receiving preferential treatment from the EEC had to grant EEC members duty-free access to its markets.[16]

Even with preferential tariffs, discrimination against the products of poor countries by rich ones can continue on a massive scale through non-tariff barriers and high tariffs on certain "import sensitive goods." This fact has led some authorities to the conclusion that in pushing for preferential arrangements to the exclusion of general tariff reductions, the developing nations are pursuing a short-term strategy which ultimately may leave them in a poorer position than the one they presently occupy. The ODC observes:

> Because the possibility that preferential treatment might be withdrawn, or that eligibility might be denied due to failure to meet certain criteria, developing countries in fact should seek concessions in the multilateral negotiations on *all* items even those eligible for preference. Some developing countries, however, have taken the opposite tack, arguing that items eligible for preference should be excluded from negotiations. This suggestion not only increases the danger that developing country exporters will be left facing high duties in the not unlikely event that preferences are withdrawn, but also limits the possibility of attaching a serious obstacle to the degree of processing of a product. Negotiating the definitive reduction of such high tariffs is far more preferable to reliance on uncertain and temporary preferential rates.[17]

One other problem deserves special mention in any discussion of preferential tariffs. It is the problem of multinational corporations. Some authorities oppose granting preference on the grounds that the benefits flow principally to these large concerns, not to the individual country. "Operations of multinational corporations do indeed account for a significant proportion of developing countries trade in manufactures. In individual countries in Asia and Latin America, an estimated 15 per cent to over 50 per cent of manufactured exports are generated by multinational enterprises." Moreover, these companies often pursue restrictive business practices in marketing the goods of developing countries as well as intra-company transfer pricing which decreases the nations' income from exports. Frequently, attempts to control multinational corporations expose the develop-

ing country to retaliation not only from the company itself, but from foreign governments.[18]

In the past, tariff agreements have operated to guarantee exporters access to markets. Once a tariff reduction was negotiated, for example, nations which defaulted were expected to pay compensation to exporters for closing off their markets. No such provision has ever existed to protect the importer against closure of his sources of supply. As was seen in the oil crisis, exporting nations can discontinue supplying importing nations at will. Some authorities argue that trade negotiations should be expanded to include guarantees on the access to supply as well as guarantees on the access to market.[19]

Distribution and Allocation through Assistance and Private Investment

In 1974 the deficit of the 40 poorest countries, including all income from trade, development assistance programs, private investments, and tourism, was $3 billion.[20] The trade negotiations now underway, with their emphasis on preferential treatment, may help reduce this deficit, but they will not generate the large sums of capital which must be raised before the poor nations can meet their development needs. That capital must come through capital flows from the developed world and, hopefully, from the new super powers of the OPEC organization in the form of grants, loans, credits, and investments.

From 1962 to 1972, the capital flow from developed to underdeveloped nations increased from $8.4 billion to $19.7 billion. Of the 1972 amount, $8.7 billion came from official governmental development assistance programs (bilateral and multilateral); private investment accounted for $8.4 billion; and other types of official capital flows (non-developmental purposes) accounted for the remainder.[21]

Development assistance. Since 1962, industrial nations have allocated nearly $70 billion for development in the poorer nations. The greatest part has been given on a bilateral basis with the lion's share in grants and technical assistance and lesser amounts in soft loans (long-term, low-interest loans).[22] However, multilateral organizations are gradually assuming a greater part of the burden. These include the International Bank for Reconstruction and Development, the International Finance Corporation, the International Development Association, the Inter-American Development Bank, the Asian Development Bank, the African Development Bank, the United Nations Development Program-Special Fund, the UN Development Programme-Technical Assistance, and the European Economic Community.[23]

Although throughout the period the United States contributed the largest dollar amounts, its percentage share of total assistance has declined steadily, from 58.5 per cent in 1962 ($3.1 billion) to 38.7 per cent ($3.5 billion) in 1972. Moreover, expressed as a percentage of GNP (Gross National Product), the United States support of development in poorer areas

has fallen precipitously. It now stands at .029 per cent of GNP, a far cry from the .07 per cent called for by the United Nations in its Second Development Decade plan. The United States now ranks twelfth among the developed nations in the percentage of GNP it funnels into development programs.[24]

The greatest share of bilateral and multilateral grants and loans, 46.8 per cent, flow to Asia. Africa receives 24.4 per cent; Latin America, 12.6 per cent; Oceania, 12.2 per cent; Europe (Cyprus, Gibraltar, Greece, Malta, Spain, Turkey, and Yugoslavia), 3.9 per cent.[25]

What course American assistance will take in the future is problematical. Some signs point to a build-up of opposition to assistance in Congress and the Executive branch. The Food for Peace program has been cut back to approximately two-thirds of its 1966 level (a drop from $1.5 billion to $1 billion). The Agency for International Development (AID) has closed its India office after 20 years of cooperation. Furthermore, there is a growing reluctance to support soft loans to developing countries. For example, the United States is four years behind in its payments to the soft loan window of the Asian Development Bank and a year behind in its commitment for the third replenishing of the International Development Association (IDA). Thus far, Congress has refused to vote *any* funds for the fourth replenishing of the IDA. More significant, perhaps, the United States is almost alone among the major nations of the world in its inflexible opposition to reform of the Special Drawing Rights system of the International Monetary Fund (IMF) which aimed at making new sources of capital available to developing countries.[26]

On the other hand, Congress has continued AID through 1976 (at slightly lower levels), and the United States has generally supported measures in the IMF and GATT for strengthening the voice of representatives from the developing world.

At this point, one fact seems to be clear: major new impetus for foreign assistance must come from the oil-rich nations of OPEC. As we have seen, the payments of the OPEC nations were an estimated $85 billion in surplus in 1974. Many of the OPEC members—Iran, Indonesia, Nigeria, and Venezuela—will use these surpluses to meet their own domestic development needs. Others, however, such as Saudi Arabia, Kuwait, and the United Arab Emirates have no way of disposing of these surpluses except through foreign investment or the amassing of monetary reserves. At the present time only a trickle from these funds is reaching the poorest nations.[27] In a "Solemn Declaration" issued on March 6, 1975, the OPEC nations pledged substantial support to developing counties and indicated willingness not only to assist them through grants and concessionary loans, but to guarantee their supplies of oil and fertilizers. However, the OPEC countries warned that this assistance was dependent on discovering solutions to the larger problems facing the world community—inflation, balance of payment disequilibriums, and the threat of war.[28]

Why do nations assist others through grants and loans for development? One reason, certainly, is political. Throughout the Cold War period,

the United States has used foreign economic assistance as a means of arresting the spread of communism, not only by tying foreign governments to us by the threads of aid, but by giving them the economic strength to resist communist initiatives on their own. While space does not permit an in-depth discussion of the consequences attending the use of aid for political purposes, some evidence suggests that the practice is often counterproductive, creating enemies as well as friends and involving the United States in the support of corrupt foreign governments whose policies encourage communistic up-risings.[29] Second, foreign assistance is used to promote a nation's business interests. Through development, markets are created for manufactured exports, supplies of raw materials are opened up, and a more desirable climate for investments is established. The Food for Peace Program (PL 480) has been both lauded and denounced for its business orientation. There can be little doubt that the program has opened up vast, new, long-term markets for American agricultural commodities. In Iran, Taiwan, and South Korea, for example, Food for Peace programs have developed strong cash markets. At the same time, however, it is claimed that PL 480, because of its emphasis on promoting American farm interests, has retarded agricultural development in recipient nations. South Korean rice production lagged, for example, following Food for Peace programs that gradually introduced more and more wheat into the South Korean diet. Now faced by mounting trade deficits, South Korea has been forced to divert precious foreign exchange from development programs to buy costly American wheat. In order to escape the dilemma, South Korea recently agreed to limit textile exports to the United States in return for concessionary prices on American wheat imports.[30]

As Paul Sameulson points out, ultimately neither political nor business interests fully explain the vast sums in assistance that have been distributed since World War II. Much of this giving can only be explained in terms of altruism, a genuine desire for the growth and development of the less fortunate.[31]

In the past, economic assistance programs were aimed at stimulating growth of the GNP in developing countries. Hence, these programs stressed capital intensive projects to promote modernization and industrialization rather than labor intensive projects to solve problems of rural and urban poverty. It was widely accepted that the effects of modernization and industrialization would ultimately trickle down to the poor who would find an escape hatch from poverty as the GNP increased. However, experience indicates that the poorer classes in the developing nations have not profited appreciably, even though in some nations growth has proceeded at a rapid rate.[32] As Charles Paolillo explains,

> [D]evelopment was generally considered to be simply "growth"—an increase in the gross national product of a country as a whole, without special regard to how the increase was achieved, who benefited and who did not, or what other problems were caused. During the past decade,

> however, while the developing countries experienced unprecedented rates of economic growth, their social problems worsened — unemployment rose, income disparities increased, the rural/urban imbalance grew, population soared — the poor were largely unaffected.[33]

Today, more and more authorities are calling for approaches which will directly attack the problem of poverty in developing nations. These approaches call for programs: "(1) to provide those most in want with basic necessities; (2) to spread the benefits of development more equitably, (3) to accelerate overall economic growth, and (4) [to] help reduce population growth." This new thinking is reflected in the 1973 AID authorization as well as the soft loan strategies now being pursued by multilateral organizations.[34]

The concept is far more appropriate for multilateral assistance programs than for bilateral ones. The reason arises from the fact that the new concept will involve much more participation by the donor nation in the domestic affairs of the recipient country. To the extent that new programs must work around grave social and political inequities and challenge long-standing religious and cultural beliefs, they carry with them an inherent danger of alienating both the governments and the people of the developing world. Multilateral organizations are less likely to generate antagonisms since developing nations have a much greater voice in shaping their policies.[35]

Private investment. As we have seen, private investment accounts for over $3 billion annually in direct capital flows to developing countries. In addition, another estimated $100 million reaches them through private investments in international lending agencies. For the most part, levels of investment have increased at a steady rate since 1962.[36]

Most authorities agree that these rates of increase would have been higher had developing countries presented less risk to the investor. One risk, as was seen in Section I, comes from expropriation. The American Bar Association reports that "literally billions of dollars have been held back from foreign private investment because of the risk of confiscation, especially expropriation."[37] While, as we saw before, nations ordinarily pay compensations to companies they nationalize, this compensation may take the form of bonds of dubious value, but the compensation seldom reflects the true long-range value of the assets. Investors can buy insurance to protect themselves from losses arising from expropriation, but such insurance, because of the risk, is exceedingly expensive and is riddled with exclusionary clauses and limitations. In addition to expropriation, investors face many other risks in the developing countries—discrimination in tax rates, minimum wage laws, and controls over expropriation are just a few of these. Eugene Mooney says, these may be just as dangerous to the investor as outright expropriation. The law covering these practices, sometimes referred to as "creeping expropriation," is unclear and incomplete. In any event, better investor safeguards must be designed before the risk to investors is

reduced enough to generate the capital flow that developing nations require.[38]

In recent years, several new approaches have been suggested for accumulating investment capital for use in developing countries. The first of these is a scheme for the creation of an export credit fund. The fund would borrow money from the public and lend it to poor countries who agreed to buy American products on reasonable terms. As discussed in Congress, "it would have provided low interest credits by paying for the difference between its borrowing and lending notes with some of the receipts coming in from past aid loans that otherwise go to the Treasury or are available for relending by AID." In a second proposal, developing countries would be able to sell investment bonds on the American market. These bonds might be guaranteed by the United States or by a multilateral organization.[39]

Development and Allocation through the International Monetary System

The Committee on Economic Development observed in 1973:

> A successful reform of the international monetary system would by itself be of major benefit to the less developed countries. . . By reducing the size of payment imbalances and preventing the recurrence of monetary crises, it should enable the more advanced nations to follow more stable domestic economic policies and avoid lapses into recession. This should assure expanded and steadier demand for the products of the less developed countries. In addition, these countries will be greatly aided as improvements in the adjustment process permit the removal of onerous restrictions on trade, aid and capital movement that many of the industrial countries now impose for balance of payments reasons.[40]

In order to understand why reform of the international monetary system is required and why the reform will benefit development in poorer nations, it is necessary to review briefly the system itself.

Prior to 1971, the world, for all intents and purposes, was on the gold standard. The United States dollar, which constituted the principal reserve currency and accounted for much of the liquidity (the supply of money) in international trade and exchange, was convertible into gold at $32 per ounce. Moreover, most of the world's currencies were pegged to the dollar at fixed rates of exchange established some 25 years earlier by the Bretton Woods Agreement. These rates could only be changed with permission by the International Monetary Fund after a country proved its payments balance was in "fundamental disequilibrium." Less serious balance of payment difficulties were handled by loans from the IMF as well as through reliance on appropriate national economic policies. Throughout the post-war period, the United States ran chronic, persistant balance of payment deficits which, while they had the effect of increasing international liquidity since they placed more dollars in circulation, also began to erode the ability of the United States to redeem them from its gold reserves. In 1970, holders of

American dollars began converting them into gold in ever-increasing numbers. Faced by loss of its gold stock and collapse of the dollar the United States officially went off the gold standard (refused to convert dollars into gold) in mid-1972. Several devaluations of the dollar proceeded in rapid order, each time requiring other nations to revalue their currencies. By 1973, all major currencies of the Free World were "freely floating" (their value determined day by day in the market place). This encouraged widespread and serious speculation in currencies. In an attempt to restore order, a consortium of major nations intervened and, by agreeing to protect the currencies of one another, succeeded temporarily in ending the speculation.

Authorities generally concede that the present international monetary arrangement is especially fragile and could come unglued very easily. In particular, it can be torn apart by economic conditions, such as the energy crisis, which promote large surpluses in certain nations and equally large deficits in others. Unless these imbalances are adjusted promptly, they may lead to constriction in trade which, in turn, can deepen into world-wide recession or depression.[41]

If adjustments cannot be made through international mechanisms, nations whose payments are in fundamental disequilibrium (either from chronic surplus or deficit) may take one or more of the following steps to restore balance. First, they can adopt fiscal and monetary policies (changes in the level of interest rates or government spending) which affect demand in their economies. As demand heightens or slackens in response to these changes, imports increase or decline. Second, they can revalue their currency (either appreciate or depreciate it). Currency adjustments "directly affect relative international prices and costs," thus regulating the competitive trade position of nations. Finally, they can enact controls "that impinge on . . . international . . . trade and capital movements (trade barriers and exchange regulations)." When major trading nations undertake these adjustments, their effects are rapidly felt by their trading partners. The initiation of trade barriers, currency devaluations, and exchange controls invite retaliation. Soon, "confidence in currencies erodes, trade and commerce shrivel. If not arrested in short order, the stage is set for a serious recession or world depression. The developing countries, because they generally are unable to buffer their economies from even minor adjustments made by major trading nations, feel the effects first and suffer the most.

At the present time, the problem of adjusting fundamental disequilibriums among nations is complicated by the fact that nations have refused to dip into their reserves to meet international payments. The reserves of many nations are made up of gold. Although gold is officially priced at $42.50 per ounce ($35.00 per ounce in the IMF), its value on the world market is much higher, ranging from $116 to $197 per ounce in 1974. Why, these nations reason, should we settle accounts by selling gold at $42 per ounce when its market value is three times that amount. As a consequence, nations have used their gold reserves as collateral in borrowing funds to meet their deficits. This practice, however, only piles debt on debt and,

hence, is no long-range solution.

Led by the United States, an increasing number of nations are accepting the view that gold should be "deinstitutionalized as an international monetary unit." Miroslav A. Kriz observes:

> At the end of 1974, world gold matters, which are political in the final analysis, were . . . in full evolution. Governments seemed to accept the thought that, in the future, inflows of gold could not be relied upon to provide the bulk of new liquidity. . . . Gold was to be divested to its traditional function as the common denominator of currencies and the yardstick of monetary value.[43]

How do nations presently settle international accounts? The chief mechanisms for Free World nations in the IMF is through Special Drawing Rights (SDR)—debtor nations borrow from the Fund to meet their short-term liabilities. Paul Samuelson explains this operation:

> Suppose a country, say, England, is in need of short-term credit from the Fund. How does the Fund enable such a debtor country to get hold of dollars, for instance? It does this by extending "purchasing rights." It simply permits the British to buy with British currency some of the Fund's own holdings of dollars. After the British balance of payments has improved, they are expected to buy back with gold (or with dollars) the pounds they have sold to the Fund.[44]

The IMF, of course, polices its members to prevent them from going too far into debt. Penalties may be applied and the Fund counsels its members on how to adjust fundamental disequilibriums without creating conditions that could trigger general depression.

The present SDR is defective in two respects. First, it is too limited to meet current demands, especially in view of the large volume of petrodollars entering into the world's investment channel. Some nations believe the Fund should be increased to upward of $30 billion. Increases of this magnitude would require that the SDR be divorced from gold. Second, developing nations currently are allocated too few SDRs. As we have seen, effort to expand their SDRs, which gave them an important source of new development capital, has been thwarted by the adamant opposition of the United States. United States opposition is grounded in the fear that developing nations might abuse SDRs and that existing IMF rules and regulations are not strong enough to curb such abuses.[45]

Pressure to reform the international monetary system is growing yearly. Overall, the SDR of the IMF must be increased not only to meet the liquidity demands of world trade, but to guard world currencies against speculation. In addition, SDRs should be made available to developing countries, or their equivalency in international soft loans should be provided. These reforms will require new international discussions on a broad range of subjects—the role of gold in international finance, the type of

adjustments that nations are permited to use to restore equilibrium in payments, penalties that can be applied against violation, and, in general, whether the IMF ought to be given broad new, supra-national powers.[46]

SECTION II FOOTNOTES

1 James W. Howe, "Agenda for Action," in *The U.S and the Developing World: Agenda for Action, 1974*, ed. James W. Howe (New York: Praeger Publishers, 1974), p. 13.

2 *Ibid*, Appendix B, pp. 156-157. This reference contains three appendixes which contain extensive and excellent charts and tables drawn from a number of sources. Use has been made of these appendixes rather than the original sources.

3 *Ibid*, p.163.

4 *Ibid*.

5 *Ibid*. C. Chung-Tse Shih, "Commercial and Trade Policies," in *Encyclopaedia Britannica Book of the Year: 1975* (Chicago: Encyclopaedia Britannica, Inc., 1975), p. 175.

6 Miroslav A. Kriz, "Exchange and Payments, International," in *Encyclopaedia Britannica Book of the Year: 1975* (Chicago: Encyclopaedia Britannica, Inc., 1975), pp. 294-295.

7 Howe, "Agenda for Action," p. 8.

8 *Ibid.*, p. 13.

9 An excellent discussion of tariff and tariff barriers is found in Paul A. Samuelson, *Economics: An Introductory Analysis*, 7th ed. (New York: McGraw-Hill Book Company, 1967), pp. 653-680.

10 *Ibid*.

11 Howe, "Agenda for Action," pp. 25-26.

12 *Ibid*.

13 Guy F. Erb, "The Developing Countries in the Tokyo Round, " in *The U.S. and the Developing World: Agenda for Action*, 1974, ed. James W. Howe (New York: Praeger Publishers, 1974), p. 85.

14 *Ibid*.

15 See Samuelson, *Economics*, pp. 672-673.

16 C. Chung-Tse Shih, "Commercial and Trade Policies," pp. 176-177.

17 Erb, "The Developing Countries in the Tokyo Round," p. 91.

18 Miguel S. Wionczek, "Mexican Nationalism, Foreign Private Investment, and Problems of a Technical Nature," in *Private Foreign Investment and the Developing World* (New York: Praeger Publishers, 1971), pp. 203-206. See, also Erb, "The Developing Countries in the Tokyo Round," pp. 89-90.

19 Howe, "Agenda for Action," pp. 4-5.

20 A.G. Armstrong, "International Trade," in *Encyclopaedia Britannica Book of the Year: 1975* (Chicago: Encyclopaedia Britannica, Inc., 1975), pp. 684-685.

21 Howe, *The U.S. and the Developing World*, pp. 156-157.

22 *Ibid*.

23 *Ibid.*, p. 193.

24 *Ibid.*, pp. 194-196.

25 *Ibid.*, p. 209.

26 Committee for Economic Development, *Strengthening the World Monetary System* (New York: Committee for Economic Development, 1973), pp. 58-70.

27 Kriz, "Exchange and Payments, International," p. 294.

28 *Washington Post*, 18 March 1975, p. B16. The full text of the "Solemn Declaration."

29 John White, *Regional Development Banks: The Asian, African and Inter-American Development Banks* (New York: Praeger Publishers, 1972), pp. 11-18.

30 *Washington Post*, 9-14 March 1975.

31 Samuelson, *Economics*, p. 685.

32 Charles A. Paolillo, "Development Assistance: Where Next," in *The U.S. and the Developing World: Agenda for Action, 1974*, ed. James W. Howe (New York: Praeger Publishers, 1974), p. 108.

33 *Ibid.*, p. 109

34 *Ibid.*

35 White, *Regional Development Banks*, pp. 11-18.

36 Howe, *The U.S. and the Developing World*, pp. 156-157.

37 Eugene F. Mooney, *Foreign Seizures: Sabbatino and the Act of State Doctrine* (Lexington: University of Kentucky Press, 1967), p. 144.

38 *Ibid.*, pp. 143-147.

39 Paolillo, "Development Assistance," pp. 118-119.

40 Committee for Economic Development, *Strengthening the World Monetary System*, p. 78.

41 *Ibid.*, pp. 19-20.

42 *Ibid.*, pp. 21-22.

43 Kriz, "Exchange and Payments, International," p. 297.

44 Samuelson, *Economics*, p. 687.

45 Kriz, "Exchange and Payments, International," p. 294.

46 Committee for Economic Development, *Strengthening the World Monetary System*, pp. 20-31.

CORRECTION

A couple of unfortunate typographical errors appeared in the November 1974 issue of *The Forensic Quarterly* in proof that was not given a final reading in the National office. On page 508 words were omitted from the Comment in Brief by Professor Charles M. Hardin which made the first sentence unintelligible. The sentence should have read: "In my article, 'The Case for Constitutional Reform,' in the August [1974] issue of *The Forensic Quarterly*, criticisms of impeachment were relatively minor among the indictments of the American system."

On page 494, in the second paragraph of a short article on presidential selection, the sentence should have read: "Yet, during most of this time, each party's nominee for Vice President . . . has been chosen hurriedly by a handful of tired men during the hectic hours after the national convention has named the presidential candidate."

SECTION III: INTERNATIONAL CONTROL

This section will explore some of the advantages and disadvantages of lodging authority to develop and allocate scarce world resources in the hands of an international body. In order to orient the discussion, let us first define the key phrase, "controlled by an international organization."

Definition of Controlled by an International Organization

Controlled. Used as a verb, this term means "to exercise restraint or direction over; dominate; command." Control involves the power of someone or something else. The power to dominate and command arises from many sources. It may be a product of natural laws and principles; thus, we speak of the law of gravity, or the law of supply and demand. It also may result from delegations of authority. Our Constitution rests on such a delegation of authority from "the people" to the central government. Finally, it may stem from conquest or usurpation. The 1975-76 resolutions call for nations to delegate some of their sovereign powers to an international organization.

Control is effective only to the extent that the source of power can force or gain compliance with its will. Compliance is sought in three ways. First, authorities attempt to gain compliance through educational processes. Realizing the danger inherent in trying to check population growth through Draconian measures such as state-ordered sterilization or abortion, nations have turned to educational programs which stress the need for family planning and birth control. It is often said that "he who controls the educational process controls the future." Education, therefore, is an important tool for modifying behavior.

Second, authorities often gain compliance by bringing public pressures to bear against offending members. As will be seen below, the International Labor Organization (ILO) cannot force its members to take positive actions, but through the application of public pressure—publicizing abuses of its rules by individual nations and officially censuring them—it frequently is able to achieve its goals.

Third, authorities compel compliance through the use of sanctions, which take three forms: (1) expulsion from membership in the organization, (2) penalties, and (3) the use of countervailing force. Expulsion, or its threatened use, is a powerful policing mechanism because it exposes members of an organization to the loss of any benefits which they might gain. Expulsion from the International Monetary Fund (IMF), for example, would deny to a developing nation not only necessary banking and currency services, but access to substantial sources of world development capital. Penalties range from fines to other forms of punishment. As we have seen, the IMF is authorized to fine nations that refuse to take measures to correct fundamental disequilibriums in their balance of payment position. The use of countervailing power involves forms of retaliatory action. When, for example, Congress and the President are deadlocked on an issue where constitu-

tional powers are not clearly defined, one or the other may attempt to break the impasse by retaliating in areas where authority is unquestioned. Thus, when Congress disapproves of the President's conduct on foreign policy, it may threaten to hold up appropriations for the executive branch until the President modifies his policies.

Control, then, is linked to the application of effective force by an authority in order to gain compliance with its mandates. It is important that we realize that control is expressed on a continuum which ranges from mild exercises of power to very harsh punitive measures. Quite often, controls make use of the whole range of possibilities. What cannot be accomplished through education is sought through public pressure and censure, and what cannot be obtained through censure is gained by threatening sanctions. When control is defined in this manner, it is apparent that many activities already are controlled by international organizations, since existing international bodies carry on extensive educational programs, apply public pressure, and, in the case of the IMF, actually discipline their members through forms of sanctions. In these instances, assuming that problems remain, the 1975-76 resolutions appear to call for stepping up force levels. On the other hand, some areas are wholly uncontrolled, internationally, at the present time. Here, the resolutions require of the affirmative only that it establish some degree of international control over the area. The degree will depend on what is necessary to solve a significant problem or accrue a substantial advantage.

International organization. An organization is a body "consisting of interdependent or coordinated parts which seek to achieve common goals or purposes." International is defined as "of or pertaining to nations or their citizens." Thus, an international organization may consist of nations which have united in pursuance of common ends, or it may be made up of non-governmental (private) participants. Non-nation international organizations include pressure groups, multinational corporations, political groups such as the Communist Party of the Soviet Union, religious groups, and relief agencies.[1] The purpose of these organizations is to provide a framework through which social, economic, and political action can be taken. Within this framework, these organizations often serve to develop the technical facilities through which nations can unite to achieve common goals and to promote actions which are aimed at accomplishing those ends.[2]

At this point, we need to ask some important questions about the composition and activities of international organizations. How large must they be? Size is wholly a function of the goals of an organization and of the power it must exercise in order to realize those goals. Suppose that the goal of an organization was the maintenance of world peace. At the present time, an international organization capable of meeting this purpose might include only the United States and the Soviet Union, since those two powers together possess sufficient military force to make war unthinkable on the part of other countries. Other tasks—development of a world-wide environ-

mental protection agency, for example—would probably require participation by all nations.

What delegation of authority is required for establishment of an international organization? Again, this is a function of goals and the need for enforcement. Some ends may require extensive delegations of sovereign power to an international body by the member nations; others may entail only minimal delegations of sovereign rights. However, in all cases, some transfer of sovereignty must occur. The supremacy of the international organization, its power to act upon its members in some respect, must be unquestioned and unlimited.[3] With respect to the development and allocation of scarce resources, are there limits on the type of international body that can be created? As we have seen, the development and allocation of scarce world resources are currently affected by the interaction of three factors: (1) too many people (the problem of population growth), (2) national controls over the sources of supply of resources, and (3) distributive problems arising from trade, economic assistance programs, and the world monetary system. The establishment of an international organization directed toward solving problems in any one or more of these areas would be an acceptable interpretation of the 1975-76 resolutions.

By. This preposition means "with the participation of" or "through the agency or efficiency of." It clearly makes the international organization itself, therefore, the effective wielder of power.

Overall, the phrase, "controlled by an international organization," entails establishing a supra national body through the delegation of sovereign powers now held by nation states. The organization can be either official (made up of nations) or private (made up of citizens of nations). The organization must have the power to gain, or order compliance with, its stated purpose. Therefore, it must make use of educational processes, public pressures, and/or sanctions. The following model attempts to describe the operation of an international organization.

International Organization

Official — Private

Goals → Operation on problems with scarce world resources: Food Energy, Minerals, etc.

Authorization (Delegation of Powers) → Two or more nations

Controls → Control over

- Education
- Public pressure
- Sanctions
  - Expulsion
  - Penalties
  - Countervailing force

→

- Demand (Population growth)
- Supply (The resources)
- Distribution
  - Trade
  - Aid
  - Monetary

Expansion and Adaptation of Existing Models

As we have seen, international organizations currently operate in many of the areas which will be of primary importance in the discussion of the 1975-76 propositions. Our purpose here is to describe these organizations, suggesting not only how they might be expanded, but also how they might serve as models for the establishment of organizations in other fields.

The International Labor Organization (ILO). The ILO, which is generally recognized as one of the most successful international organizations in existence, was established in 1919 as part of the Treaty of Versailles. Its broad purpose was to examine the problems of labor and industry and to work toward their solution. Its first concern was with the fixing of fair wages and hours for European workers, but it has since expanded its operations to include other groups and problems. In 1944, at its annual conference in Philadelphia, the ILO adopted the Declaration of Basic Principles. The Declaration specifies the aim of the ILO as the promotion of "human spiritual freedom and dignity" and directs that all labor activities should be evaluated in terms of how closely they correspond to this fundamental purpose. The organization currently has over 120 member nations. Since 1944, it has expanded its activities in the area of technical assistance. Its technical assistance programs are directed toward manpower development and management training.[4]

The ILO Constitution is self-enforcing; the organization can neither legislate nor employ sanctions against noncomplying members. Yet, while limited in its exercise of authority, it is recognized as the controlling body in the determination of international labor standards, and it has been extraordinarily effective in gaining compliance with these standards.[5]

Essentially, the ILO operates in an advisory capacity. It makes recommendations to its members which they are then obligated by the ILO Constitution to place before their appropriate national authorities. If the national government fails to act on the recommendations of the ILO, this fact must be reported, together with the reasons for noncompliance. These reports must be followed by periodic progress reports on the efforts being made by the nation to cooperate. Where necessary, a commission of inquiry is authorized to investigate why action is not being taken by a member nation.[6]

This effective use of peer pressure has resulted in a remarkable ability to cut through political considerations that would stand in the way of achieving a general upgrading of labor standards. Even where recommendations are not immediately adopted, ILO presence is strongly felt by the noncomplying nation. For example, when Burma was unable to meet ILO minimum wage standards, that country was aided by ILO technical assistance for a period of four years until it was able to meet those standards. In India, the discussion of how to improve national labor policy is always guided by the dictates of the ILO conventions.[7]

The ILO ability to pressure nations into accepting its standards is also

aided by the composition of the delegations from the member states. Each nation is represented by a four-person delegation, consisting of two representatives chosen by the government, one by employers (e.g., through the chamber of commerce), and one by the organized labor movement in the country. Thus, the reluctance of government leaders to adopt a standard is inherently checked by inputs in the nation's decision-making process from nongovernment representatives.

The primary disadvantage of the ILO approach is the lack of any power to legislate or enforce its recommendations. Any nation which is steadfast in its opposition to the implementation of a recommendation cannot be forced to comply. The ILO's success in the area of labor standards may be due in large part to the fact that objections to labor standards are basically economic in nature. Thus, they can be readily overcome with technical assistance programs and economic aid. However, the area of human rights raises questions which transcend economic considerations. In this area of concern to the organization, it has met with singularly little success. Not only were its human rights recommendations frequently ignored by South Africa, for example, but the resulting political battle led to the resignation of that nation from the ILO in 1964.* This fact would suggest that, as a model, the ILO is most applicable to international problems of an economic nature.

With economic problems, standards are relatively easy to formulate, implementation normally can be facilitated by technical assistance, and progress can be assessed objectively. In contrast, it is far more difficult for nations to agree on what constitutes acceptable standards of "human spiritual freedom and dignity." Hence, programs working toward such social and political ends encounter substantial problems with implementation. The ILO model would appear to answer needs in several areas of current concern. Three of these—world environmental protection, rural poverty in the developing nations, and world population control—are singled out below. Although, of course, population is not strictly speaking an economic problem, it is believed to be amenable to an ILO-type solution.

The ILO model frequently has been suggested as a basis for creating a world environmental protection organization. Lawrence David Levien writes in the *George Washington University Law Review*:

> The ILO's special relevance to [a world environment association] lies in the fact that its success has been achieved with regard to certain defined purposes and activities which will also be the defined purposes and activities of the WEO. Thus, ILO guidelines become not only theoretical foundations for the WEO, but also practical suggestions for the achievement of its defined areas.*

How would a world environmental organization work? Just as the ILO establishes labor standards in international conventions, this organization would meet in conferences to set standards for the world use of the environment. Once the standards were fixed, again like the ILO, members of the

organization would be obligated to present them to their national authorities with a request for implementation. If their governments failed to take action on the request, members would file reports with the organization, detailing why the nation was in noncompliance. At that time, the organization could take appropriate steps to gain compliance. Like the ILO, it could work around roadblocks by supplying technical assistance. If, after a period of time, the nation still had not made progress, the organization could order a commission of inquiry to gather data and offer recommendations. This, in turn, would open the nation to intensive peer pressures from other nations. The organization also could permit member nations to file complaints against other member nations. This, too, would require a commission of inquiry and raise the danger of peer pressure. The composition of the delegations from each nation would correspond to the composition of delegations in the ILO. Thus, each nation might be represented by a four-person delegation consisting of two representatives from government, a single representative from industry, and one from conservation-minded groups.

The disadvantages of attempting to control the world environment through an ILO-type international organization are twofold. First, nations might encounter difficulties in establishing meaningful standards. The problem is not concerned with technology. The organization would be guided in its deliberations by a vast store of information gleaned from the experiences of individual nations which have established environmental protection agencies. Rather, the problem is economic. Where would nations, especially the developing ones, find the resources to implement standards of clean air and water? This problem might be resolved in two ways. First, lower standards might be set for the developing nations, and massive technical assistance could be made available. However, to make technical assistance available at the levels which would be required would entail extraordinary means of funding, and the ILO model offers no guidelines or clues as to how these funds could be raised.

If funding is a serious barrier to establishing an effective world environmental agency patterned after the ILO, it becomes a critical one when we consider adapting the ILO to an international organization for aiding the rural poor in developing countries.

We have already looked briefly at the problem of rural poverty in the less developed world. We also have noticed that development programs, in the main, have concentrated on raising the GNP of the nation without giving serious consideration to improving the standard of living of the individual, especially in rural areas. It generally has been assumed that by raising the GNP, the standard of living would be swept upward as well. Such has not been the case. During the past decade, developing countries have experienced unprecedented economic growth, but wealth has been spread unevenly. As a general rule, increases in GNP have been accompanied by deepening poverty.[10] In recognition of this fact, the emphasis in both bilateral and multilateral assistance programs has been shifted from approaches

which build GNP to ones which attempt to raise the standard of living of the poor.

"Standard of living" and "poverty" are economic concepts which can be defined and described statistically in much the same way as wages and hours. Moreover, poverty has been studied extensively to the point that we speak with definition of "poverty lines," a level of income below which individuals will suffer want and deprivation. This points up the fact that world income standards could be fixed by an international conference without insurmountable difficulty. Given this fact, the ILO would appear to have special relevance as a model for combating rural poverty in developing nations.

Essentially, a world poverty organization would function in much the same way as the ILO. Once acceptable standards of living had been agreed upon by an international conference, delegates from each participating nation would request their implementation by their national authorities. They would then report to the organization periodically, detailing the efforts being made in their respective countries. Noncomplying nations or nations experiencing difficulties in complying would be eligible to receive technical assistance. Thus, the process would proceed through stages of technical assistance until either the standards were met or the need for commissions of inquiry and peer pressures was perceived. Composition of the delegation to such an organization probably would include representatives from government, rural areas and elements in the society interested in seeing rapid increases in GNP.

Success of the organization would depend on its commanding the resources to carry on the technical assistance programs which would be required. Conservatively, these would run into billions of dollars each year. Affirmatives using this approach, therefore, confront problems of financing the organization. This might be done through a number of mechanisms. Each nation might be assessed a certain percentage of its GNP, for example, or financing might come from an international development fund as described below.[11] Another approach would funnel all existing bilateral and multilateral economic aid through the organization. While this would have the disadvantage of injecting uncertainty into the program, it would have the advantage of using mechanisms to which nations would be already committed.

Finally, it should be recognized that to a much greater degree than the ILO, a world poverty program could become politicized. While poverty is essentially an economic problem, its causes are linked to social and political conditions. Quite obviously, in attempting to raise the standard of living in developing countries, the organization would have to intrude on these concerns. As it has done in the ILO, this could result in destructive political struggles within the organization.

Finally, the ILO might serve as a model for an international organization to control the growth of world population. At the recent World Population Conference the participating nations agreed in principle to the need for

curbing world population growth. However, the Conference made clear that

> [t]he formulation and implementation of population policies is the sovereign right of each nation. This right is to be exercised in accordance with national objectives and needs and without external interference, taking into account universal solidarity in order to improve the quality of life of the peoples of the world.[12]

What stands behind this adamant refusal of nations to brook interference in their population policies? As we have seen, it arises in part from deep-seated fears of the motives of other nations, especially the rich and powerful ones. It also stems from ingrained cultural and religious antagonisms toward birth control and family planning. In short, birth control is a highly political issue with economic overtones, rather than an economic issue colored by political considerations.

Unlike the areas which we have discussed—wages, environment and poverty—standards of population growth cannot be generalized throughout the world. Rate of population growth is a function of the availability of land and resources, of morbidity and mortality tables, and of a nation's political aspirations. In view of these facts, an international population control organization probably could never develop world-wide standards which would be applicable and acceptable to all nations. This does not preclude the organization, however, from formulating standards for each nation on an individual basis. These would be worked out in consultation with nations and would make allowances for factors such as access to land and resources, GNP, and social and political exigencies.

Once these standards were fixed, the organization would operate along the lines of the ILO, the only exception being that nations would work toward attainment of their own particular goals instead of world standards. Thus, the organization could facilitate national birth control programs with technical assistance just as today the ILO facilitates the up-grading of labor standards with technical aid. Assistance might include training manpower for use in individual counselling and educational programs in family planning. It might also help meet the need for para-medical personnel to oversee the administering of contraceptive devices as well as the need for physicians where abortion is legally permitted.

Through the use of the report method, the organization could follow up on the nation's utilization of technical assistance in implementing its population control plan. Any nation failing to meet its objectives would be subject to commissions of inquiry and peer pressures.

In order to insure implementation, checks on governments would have to be institutionalized. Just as the ILO delegations consist of representatives of interested groups, delegations to the world population control organization would have to include representatives from nongovernmental groups. In the area of population, these groups might not be as well defined as in the area of labor; however, they would have to be included in order to

check the government representatives.

We have discovered that the ILO has broad application in the creation of international organizations. The model works best for organizations handling economic problems which permit specific formulation of standards; its effectiveness decreases as the matters of the organization become politicized. However, organizations might be able to work around political problems by approaching nations on an individual basis.

Expansion and adaptation of the International Monetary Fund. With respect to its legislative and enforcement powers, the IMF is perhaps the most powerful of the existing international organizations. The organization was described in a cursory manner in the second section. At this point, we must delve more deeply into its structure and operations.

As was indicated before, the IMF was established in 1944 following the Bretton Woods Conference. The Fund Agreement, the charter of the IMF, specifies that nations wishing to join the organization must declare that they have accepted the Fund Agreement as the law of their land. This declaration must be accompanied by a memorandum of law which describes the methods of ratifying international agreements in the particular country and how the Fund Agreement was actually ratified. It must also tell how the country intends meeting its obligations as a member of the Fund. These requirements give the Fund extraordinary standing not only in international courts, but in the courts of its members.[13]

All powers are vested in the Board of Governors; in practice, the daily operations of the Fund are conducted by the Executive Directors. Questions of interpretation of the Fund Agreement are resolved by the Executive Directors, with the right of appeal to the Board of Governors.

There are two types of members. Schedule A members are those who entered the Fund by December 31, 1946. Their quotas were set in the Fund Agreement and were determined according to a rough formula which took into account all aspects of their economic life, GNP, imports, exports, and so on. When non-schedule A members apply for membership, their quotas are fixed by the Executive Directors. A quota is analogous to a bank deposit; each nation deposits gold or a sum in reserve currencies.

The Executive Directors are determined in the following way. The five members with the largest quotas are permitted to appoint one Executive Director each. The two countries whose currency has been in the greatest demand over the previous two years also appoint one director. Three Executive Directors are appointed by the American republics (except in cases where a nation has already appointed a director). Eleven Executive Directors are elected by the rest of the countries.

Although the Fund is moving toward more democratic procedures, decisions are made through weighted voting. Each appointed Executive Director receives 250 votes plus one vote per $100,000 quota contributed by his nation. Elected Executive Directors receive 250 votes for each member electing them plus one additional vote for each $100,000 quota contributed by the nations electing them. Thus the structure of the governing body

reflects an attempt to balance the need to give all nations representation with the need to protect the vested interests of the largest contributors. This balance has been largely responsibile for the IMF's support from the more powerful nations. However, this balancing inherently politicizes and factionalizes the body between the few haves and the many have nots.[14] As we have seen, expansion of Special Drawing Rights (SDR) for developing nations has been blocked by the United States. The weighted voting system permits the United States to wield virtual veto power.

The Board of Governors has broad authority to enforce its decisions. Nations that run chronic payments deficits are advised as to the appropriate internal monetary and fiscal adjustments that must be taken in order to restore balance. If they fail to make these adjustments, they can be fined and their SDR reduced. Prolonged abuses can result in expulsion from the Fund, an especially harsh sanction since it drives the expelled member into a barter system of foreign trade, as well as denying to it the advantages of any banking system.[15]

In the second section, we described some of the reforms of the IMF which are currently being advocated. One of these, expansion of the SDRs of developing nations, has great relevance in discussions of the 1975-76 resolutions, since its effect would be to turn the IMF into an international development bank. The Committee for Economic Development spells out the situation:

> An issue that has given rise to considerable controversy in the current monetary negotiations involves the form and extent of a possible "link" between international monetary reform and an enlarged and steadier flow of development assistance to the less developed countries. . . .
>
> Adoption of proposals for an automatic link would involve a danger that decisions about SDR creation and use will be unduly affected by considerations that are unrelated to liquidity needs. It might also lead to an inequitable and haphazard distribution of the aid burden among donor countries. . . .[16]

In order to meet this objection, which essentially explains United States opposition to the reform, the IMF would have to discover ways of insuring monetary responsibility on the part of developing nations. This, in turn, would probably involve strengthening the IMF overall by giving it new legislative authorities and strengthening its sanctions.

Can the IMF be altered to meet threats like the energy crisis? In attempting to answer this question, let us remind ourselves that in a world of scarce resources, the supply and value of money cannot be considered in a vacuum. The quadrupling of oil prices in 1974 wrecked havoc on the balance of payments of many oil importing countries. Indeed, the vast monetary reserves presently being accumulated by the OPEC nations could eventually place them in the position of disrupting the world monetary system.

More importantly, nations which control vast amounts of other scarce resources threaten to follow the OPEC model.[17] These events suggest that the IMF should be reformed. But how?

One possibility is to turn the IMF into a kind of monetary-commodity bank. The new organization would work in this fashion. Just as the IMF presently pools the monetary reserves of nations, it would pool natural resources, with nations assigned quotas according to their ability to contribute. Methods of choosing the Executive Directors would be modified to reflect the change. Nations would draw from these pools of resources just as they now draw from the IMF monetary reserve. Nations in chronic deficit would be subjected to the same pressures as they are subjected to currently when they are in payments deficit. In effect, the scheme pools all world resources and guarantees all nations access to sources of supply. Moreover, it recognizes the growing importance of scarce world resources in overall growth and development. Why should nations such as OPEC countries agree to such reform? Perhaps it might by summarized in the line, "one man's shortage today is another man's shortage tomorrow." No nation, especially the OPEC countries, are immune from the activities of cartels working to control the supply and price of resources. A nation's surest guarantee against future activities of cartels is through international actions which make cartelization improbable.

Expanded use of arbitration. Currently, through bilateral agreements, many nations use arbitration to settle international disputes. Arbitration requires disputants to place their grievances before a disinterested third party who, after listening to the evidence from both sides, renders a judgement which is binding on the parties to the dispute. The present bilateral approach could be expanded into an international system.

The major advantage of arbitration is its specialization and lack of politicization. In arbitration, an unbiased arbitrator is assured, because in each case the parties to the dispute must agree on who the arbitrator will be. In contrast, the International Court of Justice is by its very nature political. Not all legal cultures are represented. More importantly, the International Court must deal with all types of issues; as a consequence, the bias of justices often shows through. Other advantages include the ability of disputants to draw from the largest possible population in order to insure objectivity and expertise in the matter at hand.[18] In addition, it is argued that developing nations will be provided with a new source of funds through adoption of an international system of arbitration.

The major disadvantage of arbitration is the lack of certainty which the procedure generates. There are no prior judicial opinions to be followed as "the law" on a particular subject. The lack of continuity could make it difficult for nations to determine what course of conduct to follow in a questionable area. However, this lack of continuity in decisions may be no more of a problem than it is for the International Court. At the present time, the Court does not recognize precedent as binding, but only as persuasive.[19]

New Iniatives

In the preceding discussion, we have attempted to describe how existing international organizations might be modified or expanded to meet emerging needs. We trust it is understood that the specific organizations which were mentioned are illustrative only of the enormous potential for other cases in the area. We are confident that, through additional research many other situations can be discovered in which the models we have identified will have applicability. Now, let us turn our attention to considerations of new initiative—to the creation of new international organizations which will operate in uncharted fields, unguided by experience or past precedence.

Before considering these new initiatives, let us explore some dynamics of the 1975-76 resolutions which have been implied in our discussion, but not formally explained. As we have seen, the threat of expulsion from an international organization often acts as a powerful sanction in gaining compliance with the organization's rules. As Blair Sloan, director of the General Legal Division of the United Nations Secretariat, has stated:

> Threat of expulsion from a technical organization, such for example as UPA, ITA, or ICAO, or from a financial organization, such as the Fund or the Bank, might be a highly effective sanction in obtaining compliance with the regulations and standards of the Organization. . . . [In contrast] it has been generally considered that expulsion from the United Nations is not an appropriate sanction since it has seemed preferable that the offending state should remain within the Organization.[20]

The effectiveness of this sanction could be increased by making membership in one international organization dependent upon satisfactory participation in others. For example, nations would be much more likely to meet their obligations to the IMF, if the IMF had the power to suspend their memberships in other international organizations. Conversely, they might improve their performances in other organizations, if they knew that failure to do so might jeopardize their IMF rights. Such interlocking arrangements among international organizations are not wildly fanciful. Indeed, they would work to the advantage of every organization because they could enormously increase the effectiveness of their enforcement powers. The principle can be extended to individual behavior. In matters such as birth control and rural development, the amount of assistance that would be made available to individuals could be conditioned by their willingness to practice family planning or adopt new agricultural techniques. This approach to enforcement will play an important role in the organizations mentioned below.

Control of the seas. Control over the high seas has developed through an interplay of custom and convention. Custom has led to the recognition that all states have the right to act against piracy; similarly, states have the right to enter the high seas for self-preservation and protection. Thus, during its war on Algeria, France declared a 32-mile wide maritime security

zone off the Algerian coast for the purpose of enforcing an embargo on supplies to the Algerian insurgents. It is significant that the protests from other nations which followed imposition of the embargo did not challenge France's authority to impose it, but only contested the manner in which it was applied.[21]

Where developments are too recent for any clear-cut custom to have been established, international conventions are called to deal with problems. These conventions have thus far produced no significant agreements. For example, the question of rights to minerals off the continental shelf of coast states was dealt with to no avail in the 1958 Geneva Convention on the High Seas. The Caracas Convention, held late in 1974, although it covered a far-ranging number of proposals, failed to reach a solution on any issue. Meanwhile, answers to some of the most critical questions of our age go unanswered. Mildred Weiss asks just a few of these:

> Who should have access to the vast deposits of petroleum, natural gas, and hard minerals known to exist offshore? Should any fees be paid to the international community by those exploiting the resources? If so, should these fees be substantial? Who should be entrusted with protecting the marine ecosystem as a whole? How much latitude should a coastal state have in setting conditions on who may pass through, under, or over its territorial seas? Should there be free transit through and overflight across international straits? Should there be a mechanism to ensure the transfer of marine technology among nations? Should dispute settlements be compulsory? Should the security of investments be guaranteed?

Authorities warn that action must be taken soon to avert wholesale despoliation of the seas and to avoid open, armed hostilities:

> [Modern technology has been] multiplying both the number and variety of other uses of the oceans, thereby increasing the likelihood of a clash between competing interests. At present, the danger of hostilities is greatest close to shore, where fishing, drilling, scientific research, and transit are most concentrated. As a result, armed hostilities have been an ever-growing danger. The recent "cod war" between Britain and Iceland and the numerous seizures of American fishing vessels off the western coast of South America are only hints of what could come. Misuse of technological advances has threatened the very existence of the world's fisheries and has increased the tension among those exploiting them. Technology, together with population growth, has contributed also to the long term, and often serious contamination of the seas—as development that could harm the entire global environment.[22]

What is clearly needed is an international organization to control the resources of the seas, with full powers to legislate and enforce its decisions with credible sanctions.

The difficulty in reaching international accords at the present time

stems from the necessity for gaining near unanimity among nations in order to reach any agreement in international conferences. Thus, coastal powers can easily block actions that are not in their own self interest. In addition, nations which are presently mining the mineral wealth of the oceans or which contemplate large scale mining ventures in the future drag their feet on efforts to reach international accords. In the practical order, these forces are powerful enough at the present time to prevent the creation of an international organization to control the seas.

The affirmative does not have to prove that an organization *can be* established; it may fiat a plan for controlling the oceans that ignores current realities of international politics. However, the affirmative is obligated to demonstrate that the organization will work once it has been constituted. This imposes a number of special burdens on the affirmative. First, it must ensure that the legislative processes of the organization do not fall under control of states which currently have vested interests in exploiting the wealth of the oceans. Voting procedures within the organization are, therefore, of critical importance. Will they follow the one nation-one vote principle? Or should the organization use a system of weighted voting, somewhat similar to the IMF? Second, the plan must include strong sanctions for obtaining compliance with the organization's rules. These might range from fines, through suspension of privileges, to outright expulsion of offending members. In addition, the affirmative may wish to make membership in other international organizations dependent on satisfactory performance in its organization to control the seas. Finally, the organization must have a strong policing mechanism. One method for policing member nations would be through commissions of inquiry which would be appointed after the organization receives complaints of violations. However, the affirmative may wish to go further and establish a kind of Coast Guard for the organization.[25]

Emergency food programs. Currently, the major organization dealing with food on an international scale is the Food and Agriculture Organization of the United Nations (FAO). To date, its functions have been limited to gathering data. In September 1946 the Director-General of the FAO proposed to the FAO Conference that a World Food Board be created. The functions of the proposed organization would have been:

1. Stabilization of prices of agricultural commodities on the world market.
2. Establishment of a world food reserve to cover emergencies resulting from crop failures.
3. Funding for the disposal of surplus agricultural produce to countries where such commodities were in scarce supply.
4. Work with other organizations toward agricultural development.[26]

The proposal was rejected after sharp debate over whether international action was necessary to deal with the problem. The United States led the opposition to the proposal. The American opposition was based, in large

part, on congressional concern over the American grain surpluses and a fear that international controls would jeopardize the United States domestic farm price support system.

Attempts to establish a world famine reserve continued through the early 1950s. Nations with agricultural surpluses vigorously opposed the scheme, preferring instead that the FAO co-ordinated bilateral aid agreements between nations with surpluses and nations with need. The scheme died in 1953 when President Eisenhower made $100 million in American surplus farm products available on a bilateral basis to nations experiencing famine.[27]

The world famine of 1972 has refocused attention on the problem. Present proposals call for the establishment of a famine relief reserve of from 3 million to 10 million tons of grain. The cost of the program would be borne by the developed nations, with individual assessments based on GNP. The reserves would be positioned in strategic places throughout the world. In addition, an early warning system would be established for predicting famine conditions.[28]

Serious objections have been raised to the proposal. First, the sufficiency of the reserve has been questioned. Some experts see the need for more in the neighborhood of 80 million tons of grain, and they warn that this need will expand as population increases. Reserves on this scale would greatly increase costs. Not only would purchase of the grain reserve itself be much more expensive, but the cost of storing the reserve would run to billions of dollars yearly. Moreover, such reserves would most certainly affect the price of grain stuffs in world markets, as well as disrupt the farm support policies of many nations. Finally, there might be substantial problems involved with where the reserves would actually be physically located—under famine conditions the temptation of nations to seize reserves located in their territories might become almost irresistible.[29]

Before leaving this area, let us observe that the world famine relief fund might serve as a model for developing reserves in other areas of scarcity. Fertilizer stockpiles might be created, for example, to assist developing nations in weathering future energy crises. The advantages and disadvantages of this scheme roughly correspond to those described above with food.

Multinational Development Corporations. The multinational corporation has proved to be one of the most successful forms of international organization. Increasingly, authorities foresee its adaptation to meet the needs of developing nations.

Adapting the multinational corporation for development purposes would work in this manner. Developing nations would form an International Community Development Corporation. The corporation would be financed by taxes and royalties from multinational corporations. In addition, the multinational corporations would be required to supply technical assistance and support. Proceeds from the corporation would be used for community development in the member nations of the organization.

Once the corporation undertook a development project in any commun-

ity of any of its member countries, the citizens of that community would be asked to form a local development corporation. They would elect a Board of Directors and Community Decisions Board. These local agencies would be charged with carrying out the project and ensuring that it functioned in a manner to raise the standard of living within the community. National governments would be expected to serve only in a supportive capacity. The International Community Development Corporation would coordinate activities among its member states and would arbitrate disputes among them.[30]

The key to the success of the proposal would lie in the ability of the grass roots community corporation to operate independently of its national government. However, as community corporations became successful, they might be viewed as threats to the government itself. Thus, the potential for tension between the two groups would be an ever-present possibility. This tension might lead to attempts by the government to control the community corporation. This tendency would be fostered by the lack of skilled leaders at the community level in the developing nations. Thus, community involvement, the goal of the proposal, could be undercut at the outset. These problems would have to be considered and dealt with, if the International Community Development Corporation approach were to achieve any substantial degree of success.[31]

SECTION III FOOTNOTES

1 See Myres S. McDougal, *et al.*, *Studies in World Public Order* (New Haven, Conn.: Yale University Press, 1960) for a discussion of the interaction of these groups and their roles in the international community.

2 Werner Levi, *Fundamentals of World Organization* (Minneapolis: University of Minnesota Press, 1950), *passim*.

3 The need for a delegation of sovereignty is discussed in "Towards Peaceful Settlement of Ocean Space Disputes," *San Diego Law Review* 11 (1974): 733.

4 Lawrence David Levien, "A Structural Model for a World Environmental Organization: The ILO Experience," *George Washington University Law Review* 40 (1972): 466-467.

5 *Ibid.*, pp. 468-469.

6 Blair Sloan, "Implementation and Enforcement of Decisions International Organizations," in *Sixty-second Meeting of the American Society of International Law* (Washington, D.C.: American Society of International Law, 1970), pp. 6-7.

7 Levien, "A Structural Model for a World Environmental Organization," p. 469.

8 *Ibid.*, pp. 472-473.

9 *Ibid.*, p. 470.

10 James W. Howe, ed., *The U.S. and the Developing World: Agenda for Action, 1974* (New York: Praeger Publishers, 1974), pp. 108-111.

11 The approach might utilize the quota system formula of the International Monetary Fund discussed in Hans Aufricht, *The International Monetary Fund: Legal Bases, Structure, Functions* (New York: F.A. Praeger, 1964), p. 34.

12 United Nations, Economic and Social Council, "World Population Conference," Agenda Item 5, October 2, 1974 (E/CONF, 60/19), p. 7.

13 Aufricht, *The International Monetary Fund: Legal Bases, Structure, Functions*, pp. 9-11.

14 *Ibid.*, pp. 29-37.

15 Paul A. Samuelson, *Economics: An Introductory Analysis*, 7th ed. (New York: McGraw-Hill Book Company, 1967), pp. 686-687.

16 Committee for Economic Development, *Strengthening the World Monetary System* (New York: Committee for Economic Development, 1973), pp. 78, 80.

17 Miroslav A. Kriz, "Exchange and Payments, International," in *Encyclopaedia Britannica Book of the Year: 1975* (Chicago: Encyclopaedia Britannica, Inc., 1975), pp. 293-298.

18 This is the way in which arbitration has worked among Soviet-bloc countries. This institutionalization of arbitration is discussed by S. Brutus in "Arbitration and International Economic Cooperation," *The Arbitration Journal* 27 (December 1972): 230.

19 Article 59 of the Statute of the ICJ provides: "The decision of the Court has no binding force except between the parties and in respect of that particular case." For a discussion of the role of judicial precedents in international law, see William Bishop, *International Law: Cases and Materials*, 3rd ed. (Boston, Mass.: Little, Brown and Company, 1971), pp. 39-41.

20 Sloan, "Implementation and Enforcement of Decisions of International Organizations," p. 11.

21 *New York Times*, Jan. 1, 1958, p. 1.

22 Mildred Weiss, "The Lawless Depths: The Need for an International Ocean Regime," in *The U.S. and the Developing World: Agenda for Action, 1974*, ed. James W. Howe (New York: Praeger Publishers, 1974), p. 95.

23 *Ibid.*, p. 97.

24 *Ibid.*, p. 96.

25 "Towards Peaceful Settlement of Ocean Space Disputes," pp. 733-756.

26 The need for the exercise of affirmative fiat is demonstrated by the current status of international opinion regarding the oceans. Nations view the oceans as being owned by no nation in particular. This view permits exploitation by all, with responsibility for none for the consequences of the exploitation. The problem is discussed by Robert Friedheim in "Ocean Science in the U.N. Political Arena," *Journal of Maritime Law* 3 (April 1972): 473.

27 United Nations, Committee on Food and Agriculture, "Functions of a World Food Reserve—Scopes and Limitations," FAO Commodity Studies No. 10 (1956).

28 Robert Asher, *United Nations and Economic and Social Cooperation* (Washington, D.C.: Brookings Institution, 1957), pp. 76-81.

29 United States Department of Agriculture, Economic Research Service, "The World Food Situation and Prospects to 1985," Foreign Agriculture Economic Report No. 98 (Washington, D.C.: December 1974), pp. 40-52.

30 *Ibid.*

31 John Vafai, "The International Community Development Corporation: A Proposed Model," *Columbia Journal of Transnational Law* 10 (Fall 1971): 364.

Reading List
Selected and Annotated

BY WILLIAM M. REYNOLDS

BOOKS

Adelman, M. A., *et al. Energy Self-Sufficiency*. Washington, D.C.: American Enterprise Institute for Public Policy Research, 1974.

Updated version of an earlier study by the MIT Energy Laboratory Policy Study Group. Forecasts that achieving United States energy self-sufficiency by the 1980s would almost certainly mean much higher prices for American consumers than a policy that relied on some imported oil.

Allaby, Michael. *Who Will Eat? The World Food Problem-Can We Solve It?* London: Tom Stacy, Ltd., 1972.

Examines the current world food problem and seeks to develop long-term solutions through a world-wide agricultural system.

American Chemical Society. *World Protein Resources*. Washington, D.C.: American Chemical Society, 1966.

Contains a full discussion of sources of protein, including its synthetic production.

Asher, Robert. *United Nations and Economic and Social Cooperation*. Washington, D.C.: Brookings Institution, 1957.

Discussion of United Nations agencies and functions.

Aufricht, Hans. *The International Monetary Fund: Legal Bases, Structure, Functions*. New York: F.A. Praeger, 1964.

Discussion of International Monetary Fund.

Bahr, Howard M. *Population, Resources and the Future; Non-Malthusian Perspectives*. Provo, Utah: Brigham Young University Press, 1972.

Views on the belief that resources will not be stripped away by overpopulation.

Baldwin, Pamela, *et al. Exploring Energy Choices*. Washington, D.C.: The Ford Foundation, 1974.

A preliminary report—the first published product of the Energy Policy Project of the Ford Foundation. This is an interim statement, designed to invite comment, criticism and suggestions, and to provide a framework for thinking about energy policy.

Barham, Rex. *The Cancer of the Earth*. Cambridge: Cambridge Aids to Learning, Ltd., 1973.

Explains why growth of the world's population and the problems arising from the growth are the most fundamental and crucial of our time.

Barkley, Paul W. and David W. Seckler. *Economic Growth and Environmental Decay: The Solution Becomes the Problem.* New York: Harcourt Brace Jovanovich, 1972.

Economic expansion and outlooks with ecological balance.

Benarde, Melvin A. *Race Against Famine.* Philadelphia: Macrae Smith Company, 1968.

An outline of the basic problems posed by hunger, solutions possible through technology, and cultural barriers to these solutions.

Berg, Alan D. *The Nutrition Factor: Its Role in National Development.* Washington, D.C.: Brookings Institution, 1973.

Levels of nutrition necessary for underdeveloped nations to develop.

Bickel, Lennard. *Facing Starvation.* New York: Reader's Digest Press/E.P. Dutton and Company, Inc., 1974.

The story of how Norman Borlaug devoted his life to the struggle of growing food, his fight against hopeless odds to develop new miracle grains, and how he created what has come to be known as the "green revolution."

Bishop, C. Franklin. *World Hunger: Reality and Challenge.* Scottsdale, Pa.: Herald Press, 1969.

Discussion of population growth and increasing affluence as they contribute to world hunger.

Bishop, William. *International Law: Cases and Materials,* 3rd ed. Boston, Mass.: Little, Brown and Company, 1971.

Textbook on international law.

Blakeslee, Leroy L., Earl O. Heady and Charles F. Farmingham. *World Food Production, Demand and Trade.* Ames: Iowa State University Press, 1973.

A substantiation of the world's agricultural potential and man's ability to prevent starvation.

Borgstrom, Georg. *The Food and People Dilemma.* Belmont, Ca.: Duxbury Press, 1973.

Examines world food shortage in light of increasing population. Attempts to explore hunger as an environmental problem.

Borgstrom, Georg. *Harvesting the Earth.* New York: Abelard-Schuman, 1973.

Possible solutions to the world food shortage.

Borgstrom, Georg. *The Hungry Planet: The Modern World at the Edge of Famine.* New York: Macmillan, 1972.

A discussion of the population explosion and the problems it creates for current aid programs.

Borgstrom, Georg. *Too Many: An Ecological Overview of Earth's Limitations*. New York: Collier, 1969.

Analysis of the problem of hunger with special attention to the use of land, water, and green revolution technology.

Bowe, Gabriel P. *The Third Horseman: A Study of World Poverty and Hunger*. Dayton, Ohio: Pflaum Press, 1967.

A book by a clergyman on the Christian distribution of resources; aimed particularly at the food problem for which the author discusses a Christian solution.

Brenner, Y.S. *Agriculture and the Economic Development of Low-Income Countries*. The Hague: Mouton, 1971.

Developing nations and their challenges of farming and manufacturing.

Bridger, Gordon and Maurice De Soissons. *Famine in Retreat? The Fight Against Hunger: a Study and a Strategy*. London: Dent, 1970.

An examination of world-wide solutions to hunger, such as the green revolution.

Brown, Lester R. *The Global Politics of Resource Scarcity*. Washington, D.C.: Overseas Development Council, 1974. (48-page monograph)

International community must recognize need for expansion of global cooperation and attention to politically and socially accepted ways of sharing scarce resources.

Brown, Lester R. *Seeds of Change: The Green Revolution and Development in the 1970s*. New York: Praeger, 1970.

An analysis of the green revolution, its success and failures, as well as its future in the 1970s.

Brown, Lester R. *World without Borders*. New York: Random House, 1972.

Promotes the idea that with shrinking world resources and growing interdependence among nations, a global community will evolve.

Brown, Lester and Gail W. Finsterbusch. *Man and His Environment: Food*. New York: Harper & Row, 1972.

Deals with food as a facet of the interrelations between man and his environment. Concerned with interconnections, interactions and consequences of food production, demand and trade.

Brown, Lester R., with Erik P. Eckholm. *By Bread Alone*. New York: Praeger Publishers, 1974.

Underscores need for worldwide approach to global food crisis. Published

for the Overseas Development Council. Includes policies suggested at the 1974 United Nations World Food Conference in Rome.

Brown, Harrison and Hutchings, Edward Jr., eds. *Are Our Descendants Doomed? Technological Change and Population Growth*. New York: Viking Press, 1972.

Review of earth's dwindling resources with several solutions to world troubles.

Brubaker, Sterling. *To Live on Earth*. Baltimore: Johns Hopkins Press, 1972.

A major summation of what we know and don't know about the ecological dangers threatening the earth today. Offers view of the mixed blessings of our industrial society, cost of achievements, and what we must be prepared to give up if we are to revamp it.

Bryant, Darrol M. *A World Broken by Unshared Bread*. Geneva: World Council of Churches, 1970.

An excellent discussion of world hunger, its causes and present solutions. Well documented throughout, this book provides numerous statistics demonstrating the inadequacy of the world's attempt to deal with hunger.

Cameron, Eugene N., ed. *The Mineral Position of the United States, 1975-2000*. Madison: University of Wisconsin Press, 1973.

Description of United States and world mineral resources.

Castro, Josue de. *The Black Book of Hunger*. New York: Funk and Wagnalls, 1968. Translated by Charles L. Markmann.

An analysis of world economic imbalance and its resulting hunger

Chadwick, Lee. *Seeds of Plenty in a Hungry World*. London: Methuen, 1968.

A discussion of the green revolution and its ability to deal with world hunger.

Clark, Colin. *Starvation or Plenty?* New York: Taplinger Publishing Company, 1970.

The book views food shortage as a political and cultural problem.

Clarke, Ronald O. and Peter C. List. *Environmental Spectrum*. New York: D. Van Nostrand Company, 1974.

Edited revisions of papers presented at a public symposium sponsored by the Liberal Arts College of Oregon State University. Concerned with the relation of the economic growth to the quality of life.

Cochrane, Willard W. *The World Food Problem: A Guardedly Optimistic View*. New York: Thomas Y. Crowell, 1969.

A consideration of the basic forces involved in the world food problem.

Cole, H.S.D., *et al.*, eds. *Models of Doom*. New York: Universe Books, 1973.
A critique of *The Limits to Growth*, by Donella H. Meadows, *et al.*, with a reply by those authors. Contributed by 13 essayists associated with the Science Policy Research Unit of the University of Sussex.

Committee for Economic Development. *Strengthening the World Monetary System*. New York: Committee for Economic Development, 1973.
Excellent description of the International Monetary Fund, together with an analysis of its deficiencies.

Cox, Idris. *The Hungry Half: A Study in the Exploitation of the "Third World."* London: Lawrence and Wishart, 1970.
This book suggests that world hunger is the result of exploitation of the Third World by the developed countries.

Darmstadter, Joel. *Energy in the World Economy: A Statistical Review of Trends in Output, Trade, and Consumption since 1925*. Baltimore: Johns Hopkins Press, 1971.
Review of energy impact on economic growth since 1925.

Dasmann, Raymond F. *Planet in Peril*. New York: The World Publishing Company, 1972.
Man and the biosphere today. An effort to provide baseline data for all those who will have to make decisions aimed at reversing the dangerous trend toward the destruction of plant, animal, and human life on our planet.

Dumont, Rene and Bernard Rosier. *The Hungry Future*. New York: Praeger, 1969.
Strikes at social systems of underdeveloped countries as a major factor in the food problem.

Ehrlich, Paul R. and Anne H. Ehrlich. *The End of Affluence*. New York: Ballantine Books, 1974.
An attempt to provide individuals with help, both in evaluating the developing state of the social system and in making appropriate personal and political decisions with a view to survival.

Ehrlich, Paul R. and Anne H. Ehrlich. *Population, Resources, Environment: Issues in Human Ecology*, 2nd. ed. San Francisco: W.H. Freeman, 1972.
The gradual outstripping of world resources and its impact on human life.

Farmer, Richard N. *Benevolent Aggression: The Necessary Impact of the Advanced Nations on Indigenous Peoples*. New York: David McKay Company, 1972.
The conflict of resource development and the pillage of the Third World.

Fisher, John Crocker. *Energy Crisis in Perspective*. New York: John Wiley & Sons, 1974.
Power resources and their shortages.

Food and Agricultural Organization of the United Nations. *FAO Documentation-Current Index*, Bibliography Section. Rome: 1968.
A bibliography of all FAO publications for 1968; a yearly publication.

Food and Agricultural Organization of the United Nations. *The State of Food and Agriculture 1970*. Rome: 1970.
A description of the world agricultural outlook upon entering the 1970s.

Food and Agricultural Organization of the United Nations. *A Strategy for Plenty*. Rome: 1970.
An explanation of the FAO's solution to world hunger.

Food Science Research Center. *World Food Problems Bibliography*. Fresno, Calif.: Albers Milling Division, Carnation Company, 1969.
An extensive bibliography of world food problems.

Freeman, Orville L. *World Without Hunger*. New York: Praeger, 1968.
The author believes the United States has the capacity and responsibility to feed the starving. This is viewed as only a stop-gap measure, however, with the longterm solution lying in an international effort to aid developing countries in growing their own food.

Freeman, S. David. *Energy: The New Era*. New York: Vintage, 1974.
Traces the development of current problems, explores new sources of energy and discusses the ingredients necessary for effective conservation and progress.

Freeman, S. David, *et al. A Time to Choose*. Cambridge, Mass.: Ballinger Publishing Company, 1974.
A product of the Energy Policy of the Ford Foundation. A reflection of the author's deep and informed conviction that we can and should have a national energy policy that serves the needs of all our people.

Gardner, Delworth B. *Protein and the Pill: A Pivotal Partnership*. Logan, Utah: State University, 1968.
The technological and economic factors of contraception and the relationship between food production and general economic development.

Garzouzi, Eva. *Economic Growth and Development: The Less Developed Countries*. New York: Vantage, 1972.
The Third World's economic potential, problems, and solutions.

Goldsmith, Edward, *et al. Blueprint for Survival*. New York: The New

American Library, Inc., 1974.
The editors of *The Ecologist*, inspired by warnings of *The Limits to Growth*, offer a positive plan for solving the dire problems of our world energy crisis.

Goulet, Denis. *The Cruel Choice: A New Concept in the Theory of Development*. New York: Atheneum, 1971.
The growing conflict between growth and waste of existing resources.

Halacy, Daniel Stephen. *Feast and Famine*. Philadelphia: Macrae Smith Company, 1971.
This book seeks to explore the irony of over-consumption in the United States while others in the world starve.

Halacy, Daniel Stephen. *The Geometry of Hunger*. New York: Harper & Row, 1972.
Starvation is the result of both population growth and barriers to adequate food production.

Handler, Philip. *Can Man Shape His Future?* Washington, D.C.: U.S. Agricultural Research Service, 1971.
A lecture before the National Academy of Sciences dealing with the environmental aspects of population growth and expanded food production.

Hardin, Clifford M. *Overcoming World Hunger*. Englewood Cliffs, N.J.: Prentice-Hall, 1969.
Description of the world population explosion, its causes and solution.

Hartly, Shirley Foster. *Population Quantity vs. Quality*. Englewood Cliffs, N.J.: Prentice-Hall, 1972.
Sociological examination of population and underdeveloped nations.

Heady, Earl Orel. *A Primer on Food, Agriculture and Public Policy*. New York: Random House, 1967.
An analysis of public policy in the area of agriculture and food relief programs.

Heintz, Peter. *The Future of Development*. Bern: H. Huber Company, 1973.
The socially advantageous and disability effect of economic growth.

Hellman, Harold. *Energy in the World of the Future*. New York: M. Evans and Co., 1973.
Concentrates on energy sources, environmentally related problems and suggestions for future policy decisions. Oriented to youthful reader.

Hellman, Harold. *Feeding the World of the Future*. New York: Evans, 1972.
An overall look at the world food crisis and future directions in agriculture.

Herfindahl, Orris Clemens. *Natural Resources Information for Economic Development: A Study*. Baltimore: Johns Hopkins Press, 1969.

Surveys on various natural resources; their availability, demand and outlook for the future. Includes a bibliography.

Hewes, Laurence. *Rural Development: World Frontiers*. Ames: Iowa State University Press, 1974.

Contends that obstacles to rural development in less developed countries are primarily man-made rather than inherent in the environment. Suggests attack on these obstacles, accompanied by efforts at regional economic integration and international cooperative effort directed toward development of large natural resources regions.

Holdren, John P. and Philip Herrera. *Energy: A Crisis in Power*. San Francisco: Sierra Club, 1971.

Conservationist view of power resources and the environment.

Hopcraft, Arthur. *Born to Hunger*. London: Heinemann, 1968.

A discussion of hunger, its effects, and why foreign aid programs have failed.

Hotell, H.C. and J.B. Howard. *New Energy Technology: Some Facts and Assessments*. Cambridge, The MIT Press, 1971.

A report on the technological status of our energy and fuel conversion process, present and projected, with an attempt to assess the technological and economic adequacy of existing or proposed processes and their consistency with developing standards of environmental quality, and to suggest where additional effort (research, development, demonstration plant) is needed to accelerate change.

Howe, Jack W. *The U.S. and the Developing World: Agenda for Action, 1974*. New York: Praeger Publishers, 1974.

Collection of essays on trade, foreign assistance, and the world monetary system.

Hutchinson, Joseph. *Population and Food Supply*. Cambridge, England: Cambridge University Press, 1969.

Background study of population and food supplies.

Idyll, Clarence P. *The Sea against Hunger*. New York: Thomas Y. Crowell, 1970.

A book on hunger's relation to the sea and a variety of ways in which the world's oceans can be used to deal with world hunger.

Inglis, K.A.D., ed. *Energy: From Surplus to Scarcity?* New York: John Wiley and Son, 1974.

Collection of essays concerned with the energy crisis.

The Institute on Man and Science. *The World Food and Energy Crises: The Role of International Organizations*. Proceedings of an International Conference, with a Report by Richard N. Gardner. Dayton, Ohio: Charles F. Kettering Foundation, 1974.

Proceedings of international conference in May 1974 at the United Nations and Rensselaerville, New York. Includes summary report by Richard N. Gardner. Conference co-sponsored by the Institute on Man and Science, the Aspen Institute for Humanistic Studies, the Overseas Development Council and the Charles F. Kettering Foundation.

Johnson, David Gale. *The Struggle against World Hunger*. New York: Foreign Policy Association, 1967.

An historical view of the Third World's continuing effort to be free from hunger.

Johnson, Glen Leroy. *Food Supply, Agriculture and Economic Development*. East Lansing: Michigan State University, 1968.

A study on Third World economic development as it relates to hunger.

Johnston, Bruce F. *Manual on Food Nutrition Policy*. Rome: Food and Agricultural Organization of the United Nations, 1969.

A manual on the nutritional aspects of food policy; how food programs can best meet nutritional requirements.

Kaplan, David and William Dickneider. *More People, More Misery*. Encino, Ca: Dickenson Publishing Company, 1973.

Massive population growth threatens to retard or destroy economic development in the Third World.

Katz, Robert. *A Giant in the Earth: The Green Revolution and a Future with 100 Billion People*. New York: Stein and Day, 1973.

An essay on the various social and cultural implications of the green revolution.

Kervin, Peter. *Poverty and Wealth*. Valley Forge, Penn.: Judson Press, 1971.

A short book questioning the basic priorities of developed countries in the face of massive starvation.

Kristensen, Thorkil. *The Food Problem of Developing Countries*. Paris: Organization for Economic Cooperation and Development, 1968.

An examination of the food problem in light of such economic factors as the balance of payments, storage, and transportation.

Laffin, John. *The Hunger to Come*. New York: Abelard-Schuman, 1971.

This book explores a wide variety of factors contributing to world-wide starvation and discusses possibilities of agricultural self-sufficiency for Third

World countries in the future as well as current assistance programs.

Lamb, H.H. *Climate: Present, Past and Future.* (multi-volume) London: Methuen and Company, Ltd., 1972.
Excellent study of trends in climate.

Langier, Jose David. *Economical and Nutritional Diets Using Scarce Resources.* East Lansing: Institute for International Business and Economic Development Studies, Michigan State University, 1970.
A technical book on nutritional intake requirements and how they can be met at low cost and with varied resources.

Leisner, Robert S. and Edward J. Kormondy. *Population and Food.* Dubuque, Iowa: Wm. C. Brown and Company, 1971.
An analysis of the population-food equation.

LeRoy, Ladurie Emmanuel. *Times of Feast, Times of Famine: A History of Climate Since the Year 1000.* London: George Allen and Unwin, Limited, 1972.
Historic precedents to modern problems and future outlook are explored.

Levi, Werner. *Fundamentals of World Organization.* Minneapolis: University of Minnesota Press, 1950.
Dated, but still relevant discussion of internationalism.

Lowry, J. *World Population and Food Supply.* London: Edward Arnold, 1970.
An up-to-date account of all the problems which must be considered in discussing world food supply.

Ludwigson, John. *Resources: Used and Abused.* New York: United Nations, 1972.
The availability of resources and their conservation in the future.

McCracken, Paul, W. (moderator). *The Energy Crisis.* Washington, D.C.: American Enterprise Institute, 1974.
Three-part round-table discussion of energy issues and options, featuring participants from Congress, the executive branch, industry, the academy, and both political parties.

McDougal, Myres S., *et al. Studies in World Public Order.* New Haven, Conn.: Yale University Press, 1960.
Discussion of international approaches.

McKenzie, Ann. *The Hungry World.* London: Faber, 1969.
A history of world food production with special sections on population, drought and malnutrition.

McNamara, Robert. *One Hundred Countries, Two Billion People: The Dimensions of Development.* London: Pall Mall Press, 1973.
Underdeveloped areas and economic aid and growth.

Macrakis, Michael S. *Energy: Demand, Conservation and Institutional Problems.* Cambridge: MIT Press, 1974.
Current problems in United States power resources.

Maddison, Angus. *Economic Progress and Policy in Developing Countries.* New York: Norten, 1970.
Economic growth and policy in the less developed nations.

Mathur, S. *Agriculture Policy and Food Self-Sufficiency.* New Delhi: Associated Publishing House, 1970.
An Indian author views his country's food shortage problems, dealing with such factors as cultural barriers to agricultural sulf-sufficiency, industrialization as a prerequisite to agricultural improvement, and food distribution problem.

Mathews, William H., *et al. Man's Impact on the Climate.* Cambridge: MIT Press, 1971.
Total analysis of subject, including effects upon food supply.

Maunder, W.J. *The Value of the Weather.* London: Methuen and Company, Ltd., 1970.
Discusses good and bad effects of weather on the food supply.

Mead, Margaret. *Hunger.* New York: Scientists Institute for Public Information, 1970.
An essay from Mead's experiences with hunger in developing countries.

Meadows, Donella H., *et al. The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind.* New York: Universe Books, 1972.
Explosive discourse on why man must stop producing more in the future and must settle for less, or negative, growth.

Mesarovic, Mihajlo and Eduard Pestel. *Mankind at the Turning Point.* New York: E.P. Dutton & Company, Inc./Reader's Digest Press, 1974.
Second report to the Club of Rome. A serious attempt to define the consequences of current world crises for the decision makers, and to point out what steps can be taken to avert catastrophy.

Millar, John A. *Conservation: The Scientific Aspects.* Washington, D.C.: Council of Planning Librarians, May, 1973.
Bibliography on environmental and resources crisis.

Millard, Reed. *Natural Resources: Will We Have Enough For Tomorrow's World?* New York: J. Messner, 1972.

A review of world conditions, especially the future of United States resources.

Mitchell, Edward J., ed. *Dialogue on World Oil.* Washington, D.C.: American Enterprise Institute for Public Policy Research, 1974.

Edited proceedings of 1974 conference sponsored by National Energy Project of the American Enterprise Institute for Public Policy Research.

Mitchell, Edward J. *U.S. Energy Policy: A Primer.* Washington, D.C.: American Enterprise Institute for Public Policy Research, 1974.

Argues Americans are victims of seesawing policy of government intervention in the energy market. Urges return to free market.

Mitchell, S.M. Jr. *A Reassessment of Atmospheric Pollution as a Cause of Long-Term Changes of Global Environmental Pollution.* Rev. ed. Edited by S.F. Singer. The Netherlands: D. Reidel, 1974.

Mooney, Eugene F. *Foreign Seizures: Sabbatino and the Act of State Doctrine.* Lexington: University of Kentucky Press, 1967.

Analysis of expropriation.

Morgan, Michael Alan. *Population and Food Supply.* London : Collins, 1969.

An examination of population growth, resulting economic differences throughout the world, and a discussion of the global outlook for food production.

Murphy, John P., ed. *Energy and Public Policy.* New York: The Conference Board, 1972.

Report attempts to identify the complexities of the problems of securing clean energy in the United States, and to assess costs and benefits involved in ordering the objectives and priorities of a public policy that will serve the best interests of all.

Nanes, Allen S. *Science, Technology and American Diplomacy: Beyond Malthus; the Food/People Equation.* Washington, D.C.: U.S. Government Printing Office, Prepared for Subcommittee on National Security, Policy and Scientific Developments, Committee on Foreign Affairs, comm. print, 1971.

An exploration of the interaction of science, technology, and American diplomacy in the extraordinarily complex problem of the changing balance between food and population in the less developed countries.

National Research Council—Committee on Resources and Man. *Resources and Man: A Study.* San Francisco: W.H. Freeman, 1969.

A series of recommendations on resource usage based on a study conducted

by the National Academy of Sciences.

Neal, Fred Warner and Mary Kersey Harvey, eds. *American Foreign Policy in the Age of Interdependence*. Vol. 3, Pacem in Terris III. Santa Barbara, Calif.: Center for the Study of Democratic Institutions, 1974.

In proposing a new foreign policy, this work deals with the necessity of shifting from military to economic considerations as the prime basis, with trade and development, with emerging technological and environmental issues, and with the transnational institution-building solution these problems seem to demand.

Ogg, Elizabeth. *Population and the American Future*. New York: Public Affairs Committee, 1974. (28-page pamphlet)

Examines United States population growth and urges governmental action to cope successfully with population problems.

Oliver, John E. *Climate and Man's Environment: An Introduction to Applied Climatology*. New York: John Wiley and Sons, 1973.

Climatological factors leading to food problems are detailed.

Osborn, Fairfield. *The Limits of the Earth*. Westport, Conn.: Greenwood Press, 1971.

An historical development by world regions of the current food crisis.

Owens, Edgar and Robert Shaw. *Development Reconsidered: Bridging the Gap Between Government and People*. Lexington, Mass.: Heath Company, 1972.

The dim prospects of world development are further hurt by dwindling resources.

Paddock, William and Paul Paddock. *Famine 1975! America's Decision, Who Will Survive?* Boston: Little, Brown and Company, 1967.

A pessimistic view of world hunger and the inevitability of massive starvation.

Pearson, Frank and Floyd A. Harper. *The World's Hunger*. New York: Kennikat Press, 1972.

A basic analysis of world hunger.

Pintauro, Nicholas. *Sugar Substitutes and Enhancers*. Park Ridge, N.J.: Noyes Data Corporation, 1973.

A discussion of non-nutritive sweetners and sugar substitutes with an analysis of production possibilities.

Piotrow, Phyllis Tilson. *World Population Crisis: The United States Response*. New York: Praeger, 1973.

How the United States views and acts upon the causes and effects of

overpopulation in other parts of the world.

Poleman, Thomas and Donald K. Freebairn, eds. *Food, Population and Employment: The Impact of the Green Revolution*. New York: Praeger, 1973.
Findings of the Cornell workshop on food, population, and employment.

Pratt, Christopher J. *Fertilizer Demand and Supply Projection to 1980 for South America and Central America*. New York: United Nations, 1970.
The fertilizer industry and projected demands for agricultural growth.

Ridgeway, James. *The Last Play*. New York: E.P. Dutton and Company, Inc., 1973.
The struggle to monopolize the world's energy resources. Deeply researched examination of the ownership, production and distribution of these resources.

Rocks, Lawrence and Richard P. Runyon. *The Energy Crisis*. New York: Crown Publishers, Inc., 1972.
Suggests that the most profound issue we face today is an impending power shortage, while most other environmental problems (*e.g.*, pollution) are theoretically solvable.

Rogers, Walter B. *World Population and Distribution of Food*. Edmonton: University of Alberta, 1967.
A discussion of the population explosion impact on the world distribution of food.

Rolfe, Sidney E. and Walter Damm, Eds. *The Multinational Corporation in the World Economy*. New York: Praeger, 1970.
Several ideas and viewpoints on the potential of multinationals to do good and evil.

Ross, Douglas N. *Food and Population: The Next Crisis: A Special Report*. Department #639 Conference Board Publication, 1974.

Samuelson, Paul A. *Economics: An Introductory Analysis*. 7th ed. New York: McGraw-Hill Book Company, 1967.
Standard economics text.

Saveland, Robert N. *World Resources*. Boston: Ginn and Company, 1968.
Economic development of natural resources in the Eastern Hemisphere.

Schmalz, Anton B., ed. *Energy: Today's Choices, Tomorrow's Opportunities*. Washington, D.C.: World Future Society, 1974.

Examines energy questions from eight perspectives; published in conjunction with 1974 Energy Forum. Foreward by President Ford; epilog by John W. Gardner.

Scott, Anthony. *Natural Resources: The Economics of Conservation*. Toronto: McCelland and Stewart, 1973.
Conservation and developmental consequences.

Scott, John. *Hunger: A Background Book on Man's Struggle to Feed Himself*. New York: Parents Magazine Press, 1969.
The author takes the view that man can feed himself provided he uses technology and his environment wisely.

Seaborg, Glenn T. and William R. Corliss. *Man and Atom*. New York: E.P. Dutton and Company, Inc., 1971.
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